

Understanding and Developing Adaptive Leadership During Pre-commissioning

**A Monograph
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Abstract

UNDERSTANDING AND DEVELOPING ADAPTIVE LEADERSHIP DURING PRE-COMMISSIONING by MAJ Joseph H. Albrecht., United States Army, 88 pages.

In complex operational environments marked by uncertainty, lethal threats, and long term commitments, the Army's junior officers shoulder a burden that requires critical thinking and a willingness to exercise initiative and make decisions. In light of these requirements, the Army demands junior officers demonstrate adaptive leadership. Developing adaptive leadership during pre-commissioning training has challenged the Army's Reserve Officer Training Corps (ROTC) program. While the Army recognizes the importance of training and education to leader development, it historically viewed education and training in dichotomous terms, a counterproductive approach to the design of effective learning interventions during pre-commissioning. Moreover, the Army's long held view that pre-commissioning training should prepare cadets for immediate duty with troops created a tendency for the ROTC to rely on 'industrial-age' approaches, lecture and rote learning, to junior officer development. This paper argues that the Army's ROTC programs adopt experienced-based approaches to leader development to produce the adaptive leaders needed in today's complex operational environment. It posits that experienced-based approaches to leader development, such as the Adaptive Course Model and small group instruction, achieve an effective balance between training and education through experiential learning opportunities in the classroom. This paper explores the Army's historical view of education and training at the pre-commissioning level, the evolution of the Army's desire for adaptive leaders, and the nature of adaptability and adaptive leadership.

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*You got to be able to think on your feet. You got to be flexible. I can't stress that enough. That has been our success*¹

- 2nd Lt., Operation Iraqi Freedom, 2004

Introduction

The United States global security interests require that its Army remain persistently engaged internationally for the foreseeable future. The complexity of today's operational environment and the hybrid nature of potential threats require an Army prepared to conduct full spectrum operations.² To succeed in this highly competitive operational environment the Army recognizes that every leader, especially its most junior officers, must be competent, confident, and adaptive and demonstrate critical and innovative thought. Unfortunately for junior officers, limited developmental time is available to acquire the Army's desired leadership qualities. The Army officers at the tip of the proverbial spear, those who face the greatest challenges in today's complex operating environment are arguably the least prepared to meet them. In spite of the potential for poor junior officer performance under complex and unforgiving combat conditions, observations of junior officer leadership seem to demonstrate otherwise.

Lieutenants in Afghanistan, Iraq, and elsewhere have demonstrated adaptability, innovativeness, and proficiency in assignments and missions beyond traditional branch-specific skills and expected levels of responsibility. Defense Secretary Robert M. Gates recognized this reality. In his 2009 commencement address to the graduating cadets of the U.S. Military Academy at West Point, Secretary Gates said, "In Iraq and Afghanistan, we rely on junior- and

¹ Leonard Wong, "Developing Adaptive Leaders: The Crucible Experience of Operation Iraqi Freedom" (Strategic Studies Institute monograph, U.S. Army War College, 2004), 20.

² George W. Casey, Jr., "The Army of the 21st Century," *Army: 2009-10 Green Book* 59, no. 10 (October 2009): 28. The Army Chief of Staff described hybrid threats as "dynamic combinations of conventional, irregular, terrorist and criminal capabilities employed asymmetrically to counter" U.S. Army strengths; Jack D. Kem, "Reflections from Dr Jack," Combined Arms Center Blog, entry posted November 14, 2008, <http://usacac.army.mil/blog/blogs/reflectionsfromfront/archive/2008/11/14/hybrid-warfare-the-looming-threat.aspx> (accessed March 13, 2010). Dr. Kem, Director of the Land Power Studies Institute at the Combined Arms Center, Fort Leavenworth, KS, provided a good discussion of hybrid warfare and additional resources on hybrid threats in this blog post.

mid-level combat leaders to make judgments – tactical, strategic, cultural, ethical – of the kind that much more senior commanders would have made a generation ago.”³ The proclamation of junior officer success in combat is not merely strategic level rhetoric supporting the force at war. In fact, in the post-9/11 era the adaptive and innovative performance of junior officers in combat frequently gained the attention of military leaders, studies, and the media.⁴

In his U.S. Army War College monograph, Lt. Col. Stephen Quinn explicitly praised the performance, versatility, and initiative of two junior officers with whom he served in Iraq. The colonel’s account of a chemical lieutenant’s ability to perform a diverse range of duties, from Forward Operating Base Engineer to Field Artillery Battery Executive Officer in combat while also performing the traditional duties associated with his branch and position, demonstrated the capability of junior officers “to handle complex and ambiguous situations while learning along the way.”⁵ The earliest observations of leaders in Iraq and Afghanistan led some to question the source of junior leader adaptability in combat. Following the first year of Army operations in Iraq, Dr. Leonard Wong, a research professor at the U.S. Army War College Strategic Studies Institute, argued that exposure to ambiguity, uncertainty, fluid operational requirements, and complexity in post-war Iraq positively influenced junior officer development. After interviewing over 50 junior officers (lieutenants and captains), Wong concluded that junior officers serving in

³ Robert M. Gates, “For Your Freedom and Mine” (Commencement speech by the U.S. Secretary of Defense, graduation of the Class of 2009, U.S. Military Academy, West Point, NY, May 23, 2009). <http://www.usma.edu/Class/2009/GradSpeech09.asp> (accessed February 6, 2010).

⁴ Recent articles and studies concerning adaptive junior officer experiences in combat include the following: Jeffrey B. Van Sickle, “Stability Operations in Northern Iraq: Task Force Altun Kupri,” *Infantry* (January-February 2005): 25-29; Greg Jaffe, “On Ground In Iraq, Capt. Ayers Writes His Own Playbook,” *Wall Street Journal*, September 22, 2004; Donald E. Vandergriff, *Raising the Bar* (Washington, D.C.: Center for Defense Information, 2006). Vandergriff’s study provided an account of Army Capt. Jordan Becker’s combat experience during the Global War on Terror; Wong, “Developing Adaptive Leaders” (2004).

⁵ Stephen M. Quinn, “Junior Officer Leader Development in an Era of Persistent Conflict” (Strategic research project monograph, U.S. Army War College, 2008), 3-4.

post-war Iraq developed adaptive qualities from their operational experiences. These adaptive qualities the Army considered essential to success in combat. Wong wrote,

Junior officers are developing adaptability – a competency that the Army recognized as vital to future warfare, yet difficult to develop in a nondeployed Army. By being confronted with complexity, unpredictability, and ambiguity, junior officers are learning to adapt, to innovate, and to operate with minimal guidance.⁶

Wong's assessment indicated that it was not the Army's leader development system that produced adaptive junior officers. Instead, junior officer proficiency and adaptive leadership emerged predominately through hands-on, experience-based learning obtained during operational deployments.⁷ Wong therefore urged the Army to leverage the opportunity that combat experience and a cohort of adaptive leaders offered the institutional Army as it continued its transformation to meet future threats.⁸

Today's Army leadership policy and doctrine articulate the value of operational leadership experience expressed by Dr. Wong's work and the observations of mid- and senior-level officers. For example, the Army's leadership regulation states that “leader development is achieved through lifelong *synthesis of knowledge, skills, and experiences* [emphasis added] gained through institutional training and education, organizational training, operational experience, and self-development.”⁹ While Army policy and doctrine recognize the importance of operational experience, the Army also acknowledges that its current leader development process

⁶ Wong, “Developing Adaptive Leaders,” 3. Dr. Wong argued that the adaptability of junior leaders was due predominately to on-the-job experience in Iraq. Combat experiences exposed junior officers to diversity, responsibility, “complexity, unpredictability and ambiguity” that officers were not previously prepared to face by institutional or unit-led training experiences, 15-16.

⁷ In terms of a balance between leader development pillars or within the Army's training domains, the predominant contributor to the development of adaptive junior leaders today is operational experience or operational missions owing to combat deployments to Iraq, Afghanistan and elsewhere. Department of the Army, *Field Manual No. 7-0: Training for Full Spectrum Operations* (2008), 3-8. Operational missions are one of four areas that make up the operational training domain of the Army's Training System; the remaining areas are leader responsibilities, major training events, and unit training events.

⁸ Wong, “Developing Adaptive Leaders,” 20.

⁹ Department of the Army, *Regulation No. 600-100: Army Leadership* (2007), 4.

is out of balance. The Army’s Training and Doctrine Command’s recently published leader development strategy states that the Army is “out of balance in building a bench of leaders not only through operational experience but also through professional military education and assignment in broadening experiences.”¹⁰ As a result, the Army’s newest leader development strategy establishes imperatives to balance learning between the three pillars of leader development (training, education, and experience) and to “prepare leaders for hybrid threats and full spectrum operations through outcomes-based training and education.”¹¹ These imperatives account for shifts in operational paradigms that influence the manner in which the Army must prepare its officers to lead a full spectrum capable force.¹²

Despite the observed adaptability of junior officers in today’s operational environment, it is worth asking what changes, if any, should the Army make to improve its ability to produce adaptive, innovative, and confident lieutenants capable of operating more effectively in today’s “competitive learning environment.”¹³ Moreover, given the Army’s recognition that it must achieve balance in its leader development process it is also worth asking what changes, if any, should the Army make in its officer education system to produce the adaptive junior officers it needs. This monograph focuses on methodological changes to instruction at the earliest stage of

¹⁰ Department of the Army, *A Leader Development Strategy for a 21st Century Army*, 2.

¹¹ Ibid., 10. The leader development imperatives established by the new leader development strategy are as follows: (1) Encourage an equal commitment by the institution, by leaders, and by individual members of the profession to life-long learning and development; (2) Balance our commitment to the Training, Education, and Experience pillars of development; (3) Prepare leaders for hybrid threats and full spectrum operations through outcomes-based training and education; (4) Achieve balance and predictability in personnel policies and professional military education in support of ARFORGEN; (5) Manage the Army’s military and civilian talent to benefit both the institution and the individual; (6) Prepare our leaders by replicating the complexity of the operational environment in the classroom and at home station; (7) Produce leaders who are mentors and who are committed to developing their subordinates; (8) Prepare select leaders for responsibility at the national level.

¹² Ibid., 3-6. The Army Leader Development Strategy outlines three necessary paradigm shifts in leader development, accounting for 1) “The Effect of Increasing Complexity and Time,” 2) “The Effect of Decentralization,” and 3) “The Need to Frame Ill-structured Problems.”

¹³ Ibid., 1.

officer leader development, during pre-commissioning and the Reserve Officer Training Corps (ROTC).¹⁴ The central argument of this monograph is that adopting a more balanced approach to junior leader development, mixing education and utilization of experience-based training methodologies during pre-commissioning develop the most adaptable junior officers. This monograph also challenges the Army's historical belief that pre-commissioning instruction should focus predominately upon industrial-age training methods.¹⁵ Lastly, this monograph supports the Army decision to establish balance in leader development between education, training, and experience and to adopt outcomes-based training and education methods. These represent the best means to prepare junior officers to face future threats and lead full spectrum capable forces, improves the ability of junior officers to think, and instills a life-long desire for learning.

Section one of this monograph is a literature review of post-World War II historical works and studies that address Army junior officer development at the pre-commissioning level. This section focuses on examining the Army's historical view of education and training to assess the relative importance and necessary interaction of each in the development of adaptive leaders. This monograph proposes that a better understanding of the role that education and training should play in leader development will help to better focus today's learning programs and result in more meaningful learning experiences for cadets. This section of the monograph also addresses the emergence of adaptability as a desirable Army leadership quality.

Section two focuses on defining and describing adaptability and the concept of adaptive leadership in terms of its underlying attributes and competencies, its component parts, and the

¹⁴ The pre-commissioning source predominantly studied to support this monograph was the Army ROTC, which provides the largest number of commissioned officers to the active officer corps. Department of the Army, "Legacy & Value," Army ROTC, http://www.goarmy.com/rotc/legacy_and_value.jsp (accessed April 2, 2010).

¹⁵ Donald E. Vandergriff, *Raising the Bar* (Washington, DC: Center for Defense Information, 2006), 29. Vandergriff described these methods as lecture and slide presentation oriented methods requiring little involvement by students in the learning process.

cognitive processes associated with adaptive behavior. This monograph attempts to describe what adaptive leadership is and what adaptive leadership is not. This section also touches upon the shortcomings of competency-based approaches to learning curricula and attempts to identify areas for effective learning interventions. The premise of this argument is that a better understanding of adaptability and adaptive leadership helps to focus learning and achieve a better balance in the Army's approach to the development of adaptive junior officers.

Section three focuses on providing recommendations for junior officer development at the pre-commissioning level to better support the Army's need to produce adaptive junior officers. This section explores the Adaptive Course Model for junior leader development and associated techniques designed to develop the underlying cognitive and interpersonal processes associated with adaptability and adaptive leadership.

The Army needs good leaders. Army *Regulation No. 600-100: Army Leadership* states that the means by which the Army fulfills its strategic role and achieves its strategic missions are its people, more specifically its leaders.¹⁶ The Army echoes this sentiment in its operational capstone document as well. *Field Manual No. 3-0* states,

Before an operation, combat power is unrealized potential. Through leadership, this potential is transformed into action. . . . Confident, competent, and informed leadership intensifies the effectiveness of all other elements of combat power by formulating sound operational ideas and assuring discipline and motivation in the force. Good leaders are the catalyst for success.¹⁷

During this period of prolonged engagement, marked by ongoing conflicts in Afghanistan and Iraq, the Army's need for good leaders and effective programs to develop those leaders is evident. Further, in a period where conflict against adaptive and evasive threats "devolved primarily into a series of tactical engagements fought principally at squad and platoon levels,"¹⁸ the study of

¹⁶ Department of the Army, *Regulation No. 600-100*, 1.

¹⁷ Department of the Army, *Field Manual No. 3-0: Full Spectrum Operations* (2008), 4-2.

¹⁸ Robert H. Scales, "The Second Learning Revolution," *Military Review* 36, no. 1 (2006): 37.

junior officer leader development is arguably of even greater importance today than other topics that address issues further removed from the front lines of combat.

A Half Century Review of Junior Officer Development

The post World War II era was a period of increasing U.S. involvement in international affairs, growing concerns over the Soviet threat, and rapid technological innovation. Leaders at the time perceived it to be a challenging new environment, analogous to the situation the Army finds itself in today. Then as now, the proper education and training of officers garnered considerable attention. Despite a relatively consistent Army-wide perspective of the importance of a broad education to junior leader development, pre-commissioning sources have been caught in a long term tug-of-war between proponents calling for more education and those preferring a greater focus on training. In light of the immediate operational requirements of the time, Korea, Vietnam and a looming Soviet threat, pre-commissioning had to prepare cadets for duty with troops and the possibility of large scale mobilization for war. As such, the preference for more training during pre-commissioning traditionally held sway within the post- World War II Army. Recent calls for adaptability in junior leaders, however, raised the question again of the appropriate balance between education and training during a cadet's pre-commissioning experience. While the balance between education and training is often a matter of debate, the outcome of effective officer leader development strategies remains unchanged. The goal remains to train and educate junior officers to transcend the challenges and burdens faced in combat to achieve mission success. This section reviews the evolution in the Army's ongoing debate over junior officer training versus education, and the recent challenges that led the Army to focus on the need to develop adaptability in its junior officers.

Since the end of World War II, the Army alone commissioned no less than thirteen boards and studies to investigate the professional development of its officer corps.¹⁹ The first of

¹⁹ Kelly C. Jordan, "The Yin and Yang of Junior Officer Learning: The Historical Development of the Army's Institutional Education Program for Captains," *The Land Warfare Papers*, no. 49 (monograph, Association of the United States Army Institute of Land Warfare, 2004), 22.

these studies, the 1945 Gerow Board re-established the Army's institutional officer education system.²⁰ The Gerow Board directed the officer education system to provide for the education and training of Army officers from commissioning to senior service schooling.²¹ The 1949 Eddy Board subsequently assessed the adequacy of that system. Like its predecessor, the report centered on the training and educational needs of the Army's mid- to senior-grade officers. The Eddy Board drew two important conclusions concerning pre-commissioning education and training. First, the board recognized the importance of undergraduate studies for career officer development, but stopped short of requiring a baccalaureate degree for immediate service in the Regular Army.²² Second, the board concluded that pre-commissioning sources failed to adequately prepare young officers for immediate service with troops.²³ The Eddy Board, however, seemed to accept that ROTC training programs inadequately prepared junior officers for immediate duty with troops and made no recommendations for altering the ROTC pre-commissioning developmental practices to correct training deficiencies.²⁴ Both of these

²⁰ Gene M. Lyons and John W. Masland, *Education and Military Leadership: A Study of the ROTC* (Princeton: Princeton University Press, 1959), 55; Michael S. Neiberg, *Making Citizen-Soldiers: ROTC and the Ideology of American Military Service* (Cambridge: Harvard University Press, 2000), 35; John W. Yaeger, "Developing National Security Professionals," *Joint Forces Quarterly*, no. 49 (2nd Quarter 2008): 115. To meet manpower requirements associated with World War II, the Army significantly reduced its attention to institutional officer education. In addition to closing the U.S. Army War College, the Army accelerated officer education and training at the Command and General Staff College and suspended ROTC programs in favor of other accelerated officer producing programs.

²¹ Jordan, "The Yin and Yang of Junior Officer Learning," 22.

²² Department of the Army, *Report of the Department of the Army Board on Educational Systems for Officers*, Board review prepared by Lt. Gen. Manton S. Eddy, 1949, 18-19. At the time of the report, the Board stated that approximately 27 percent of the officer corps did not have an undergraduate degree. Despite the recognition of its importance, the Board only recommended that ninety percent of the Army's officers be required to have an undergraduate degree. The understanding existed, however, that continued service in the Army required one to eventually obtain a baccalaureate degree.

²³ Jordan, "The Yin and Yang of Junior Officer Learning," 6-7. Jordan identifies an increase in the number of ROTC graduates entering active duty in 1948, through the Distinguished Military Graduate program, as a contributor to the Army's need to establish branch orientation courses for newly commissioned officers in 1949.

²⁴ Department of the Army, *Report of the Department of the Army Board on Educational Systems for Officers*, 27-28. The board recognized the practical value of experience to leader development, however, given the view that newly commissioned officers were not immediately prepared for troop duty

conclusions provide a glimpse into the Army's half-century plus struggle to find an acceptable balance between education and training.

That same year, the Service Academy Board queried the Army to determine the feasibility of adopting a common, service immaterial ROTC curriculum, integrating some ROTC courses with civilian courses, and relegating purely military ROTC courses to summer camps. The Army rejected the feasibility of each proposal. The Army's position rested on the argument that cadets destined for reserve duty would not have the time or opportunity beyond commissioning to establish a sound foundational knowledge and proficiency in military specific skills. This coupled with the time constraints for summer camp required Army officers to conduct military training on campus prior to commissioning.²⁵ Ultimately, the board did not recommend the Army adopt any of these proposed curricular changes. Its decision, however, was not based upon the Army's argument concerning reserve duty and time. Instead the board's decision cited the need for well trained, branch-skilled regular officers for immediate active service in its decision.²⁶ While the Service Academy Board's suggestions seem to indicate a preference for broad educational approaches during cadet leader development, this was not the case. In a period when the fighting of World War II was still fresh in the collective memory, the Army believed that the readiness of newly commissioned officers warranted training-centered approaches over more liberal educational approaches in Army ROTC programs. In the post-Korean War period the preference of Army leaders for training over education persisted.

After 1953, during a period when the Army grew accustomed to increased civil-military interaction, a greater role in policy formation, expanding global and multinational commitments,

and immediate operational needs at an officer's first units of assignment that precluded adequate preparatory training and education, all newly commissioned officers were recommended to attend a basic branch orientation course before arriving to their first unit of assignment, 24-27.

²⁵ Lyons and Masland, *Education and Military Leadership*, 93-94.

²⁶ *Ibid.*, 94.

and rapid technological innovation, the Army again directed a review of its officer education and training programs. In 1958, the Williams Board, like the Eddy and Gerow Boards before it, addressed pre-commissioning, but only briefly. This board's coverage of pre-commissioning studies and ROTC was greater than previous studies, though only to the extent needed for the board to determine the scope and duration of training and education required for newly commissioned officers. Echoing the previous boards, the 1958 review also found newly commissioned officers inadequately prepared for immediate service with troops, and recommended continuation of branch specific orientation training after commissioning.²⁷ Unlike previous boards, the Williams Board discussed the appropriate balance between education and training at various levels of the Army's school system, setting a logical framework for the study. To that end, the report defined both education and training, established a distinction between the two, and officially delineated the Army's preference for a greater training emphasis early in an officer's career and a greater emphasis on education later in one's career.²⁸ As might be expected, academics and many military writers did not universally accept the Army's position.

John Masland and Lawrence Radway, in an important study from 1957, identified an officer's undergraduate education as a foundational precursor for strategic leadership.²⁹ Pertinent to this study, Masland and Radway identified the "ability to adapt to change" as one of several essential qualities for a military strategic leader's success.³⁰ For these authors a liberalized

²⁷ Department of the Army, *Report of the Department of the Army Officer Education and Training Review Board*, Board review prepared by Lt. Gen. Edward T. Williams, 1958, 21, 162-163. Unlike previous reviews, the Williams Board frankly articulated the Army's preference for training branch-specific military skills prior to commissioning.

²⁸ Ibid., 105.

²⁹ John W. Masland and Lawrence I. Radway, *Soldiers and Scholars: Military Education and National Policy* (Princeton: Princeton University Press, 1957). This study's emphasis was at the mid- to senior-grade officer level and the development of future strategic level officers.

³⁰ Ibid., 34-36, 45. While the scope of strategic leader's responsibilities is greater than that of junior officers, it is worth noting that several of the strategic leader qualities identified by the authors are recognized today as necessary earlier in an officer's career. Masland and Radway identified three subcomponents of a senior leader's ability to adapt that are now abilities expected at more junior levels of

undergraduate education played a key role in shaping a leader's "future habits of mind, his attitudes, and his intellectual curiosity."³¹ It also established within junior officers a genuine interest in continued self-development essential for strategic leader success.³² In light of the officer corps' expanding civil-military interaction during the Cold War era and as leaders who might later participate in policy formulation, the authors recognized value in expanding the use of ROTC programs as a source for career officers.³³

Two years later, Masland and Gene M. Lyons published a study of military leader development focused exclusively upon the ROTC program. While the authors' conclusions aligned with those of the earlier Masland and Radway study on military education writ large, this study's recommendations were specific to the challenges of leader development in the ROTC program. In addition to recommendations that the Army clarify the ROTC's Cold War purpose and improve its ability to attract and retain prospective cadets, the authors, in a general sense, recommended that the ROTC curriculum assume a more 'professional' orientation.³⁴ Masland and Lyons provided four propositions to professionalize the ROTC curriculum. First, the author's recommended ROTC programs limit initial instruction to technical matters of immediate value, applicable soon after commissioning. Second, provide specialized instruction after commissioning or upon one's arrival to a unit of assignment. Third, focus specialized instruction on general principles rather than facts and technical details of limited value. Lastly, ensure the

leadership: the ability to predict the velocity of change, the flexibility to adapt in response to the unexpected, and the ability to identify and act on trends, 35.

³¹ Masland and Radway, *Soldiers and Scholars*, 509.

³² Ibid., 237-249 and 265-271. The authors identify areas for improvement within the military academy's curricula from pages 237-249, and recommendations for improvements to the ROTC from pages 265-271. Masland and Radway recommended liberalization of academic programs (curriculum) and methods of instruction for the academies and increased officer procurement from the ROTC owing in part to the liberalized curricula at civilian universities and colleges.

³³ Ibid., 267.

³⁴ Lyons and Masland, *Education and Military Leadership*, 210, 237-239. Other recommendations included provision of adequate funding to military-related campus facilities and scholarships, and end compulsory military training.

ROTC curriculum instilled within cadets a desire for life-long learning and intellectual curiosity.³⁵ These recommendations responded to specific criticisms of the ROTC related to on campus training and poorly conducted officer-led instruction, in non-military topics, that threatened the credibility of the Army as a viable career choice for the well educated. In terms of training, the authors stated, “there is a need to drop ideas of *training* during the academic year and concentrate on the objectives of *career motivation* and *pre-professional education*” [emphasis is original].³⁶ To that end, the authors recommended restricting, to the maximum extent possible, military training to summer camps and post-commissioning training periods. This would reserve more time during undergraduate studies for more intellectually broadening subjects.³⁷ The authors also argued that limiting instruction by officers to areas of expertise, set in military surroundings (labs, field exercises, etc.) would not only improve the integrity of the officer corps, but improve cadet recruitment, retention, and enthusiasm for career-long service.³⁸ Masland and Lyons’ recommendation to remove training from campuses ran counter to the Army’s previous board findings and were rejected.³⁹ A survey of other historical works and studies of Army leader development provide a similarly dichotomous view of the relationship

³⁵ Lyons and Masland, *Education and Military Leadership*, 218.

³⁶ Ibid., 234.

³⁷ Ibid., 218.

³⁸ Ibid., 219-220, 232-233.

³⁹ Ibid., 220-221. In 1957 for example, the Army rejected a First Army proposal to move all military training to two summer camp sessions and a short period following the cadet’s senior year, just prior to commissioning; Neiberg, *Making Citizen-Soldiers*, 39, 70-71. Neiberg described the military’s preference for training in the post-World War II period stating, “The military preferred an officer preparation program that emphasized *training*, teaching practical knowledge a man needed to have to become a junior officer the day after his graduation from college.” At the end of the 1950s, the Army’s establishment of a General Military Science curriculum (GMS) was recognition of the relevance of traditionally non-military subjects such as “psychology, political science and communications” to junior officer development. Neiberg stated, however, that the GMS “had strictly military goals” designed to improve ROTC recruitment and relieve active officer assignment restrictions to ROTC units.

between training and education in officer development.⁴⁰ Concurrently, however, a more interactive, yin and yang view of officer leader development also emerged.

Despite the Army's institutional preferences, many Army officers and academics continued to stress the importance of more education (vice training) despite the wars that took place in Korea and Vietnam. The Chief of the Command and General Staff College (CGSC) Instructor Training Section in 1952, Lt. Col. Bogen, argued for a more integrated view of the relationship between training and education. Bogen stated,

There is a certain amount of education in all training and the training procedure is designed to get maximum learning of skills. The educational procedure will include training . . . However, the educational process must [also] include the posing of problems to . . . develop the ability to make sound decisions. . . . The student must be *educated* to be a problem solver. He cannot be *trained* to be one. We might go so far as to say that mental anguish is an essential part of the educational process [emphasis is original].⁴¹

Likewise, Maj. Gen. Lionel C. McGarr, former commandant of the CGSC, emphatically supported the importance of education. Addressing the CGSC faculty, the general stated, "Mere teaching of known facts leads to intellectual bankruptcy. . . . Real education must develop the individual as a whole – mentally, physically, morally, and psychologically – which calls for the training of the head, the hand, *and* [emphasis is original] the soul!"⁴² While one could argue that a call for greater focus on education was the product of a largely peacetime oriented force, the Army's entanglement in the war in Southeast Asia did not dampen the regard of many for more emphasis on education over training.⁴³ In the late 1960s, Richard de Neufville, a professor at the Massachusetts Institute of Technology, called for cadet education to focus on "the development

⁴⁰ Jordan, "The Yin and Yang of Junior Officer Learning," 1.

⁴¹ Paul L. Bogen, "How Shall We Teach What to Whom?" *Military Review* 34, no. 4 (July 1954): 9-10.

⁴² Lionel C. McGarr, "Education and National Security," *Military Review* 40, no. 4 (July 1960): 8.

⁴³ The author of this monograph recognizes that many calls for greater emphasis toward education are focused or delivered with mid- to senior-grade officers in mind. However, given the theoretical nature of the speakers' comments, the advice provided to the addressed audiences was deemed appropriate to include in this argument.

of officers with a broad interdisciplinary background commensurate with the new requirements and opportunities of modern technology.”⁴⁴ Instead of focusing upon the instruction of facts and specific skills that would over time lose relevance and become obsolete, the professor recommended that academics provide future leaders with the “full set of military and humanistic values” needed for an Army with a larger role in global affairs.⁴⁵ In a 1969 Defense study, a committee of educators and military officers, recognized the capability of the Army’s branch schools to prepare newly commissioned officers for service and believed that “much professional training [could] be deferred to a time after commissioning.”⁴⁶

During this same period, when the Army in Vietnam faced a tenacious threat from the North Vietnamese Army, the Viet Cong, and an active insurgency in South Vietnam, the Army produced two studies of the officer educational system. The first of these studies, the 1966 Haines Board provided the most extensive study on leader development to date. The board, however, directed its detailed review primarily at the ability of the ROTC program to attract and retain quality officer candidates. The Haines Board for example, observed that the provision of a “greater intellectual challenge in the officer career schooling” would help to improve officer procurement, retention, and overall career satisfaction.⁴⁷ The board’s unequivocal recommendation for all officers to possess a baccalaureate degree upon commissioning was recognition of the importance the Army identified with education at the junior officer level.⁴⁸ The 1971 Norris Board, like the Haines Board, was remarkably sparse in its discussion of pre-

⁴⁴ Richard de Neufville, “Education at the Academies . . . Where Next?” *Military Review* 47, no. 5 (May 1967): 6.

⁴⁵ Ibid., 7.

⁴⁶ Department of Defense, Manpower and Reserve Affairs, *Report of the Special Committee on ROTC to the Secretary of Defense*, Board review prepared by George C. S. Benson, 1969, 13.

⁴⁷ Department of the Army, *Report of the Department of the Army Board to Review Army Officer Schools, Volume III – Analysis of Current Army System of Officer Schooling*. Board review prepared by Lt. Gen. Ralph E. Haines, 1966, 416.

⁴⁸ Ibid., 629, 696, 704.

commissioning and the ROTC programs.⁴⁹ The Norris Board provided a discussion on teaching theory and highlighted the importance of student-centered approaches to instruction that also emphasized the importance placed on education by the Army.⁵⁰ In this discussion the board identified the value of education to qualities such as problem-solving, innovation, judgment, and adaptability. The board's rationale for adopting a "New Theory of Teaching" stated,

The shift in emphasis is away from transmission of knowledge and technique – one of the time-honored hallmarks of professional education – and toward greater stress on problem-solving ability, innovation, and judgment. To this may be added the communicative skills essential to effective functioning in a modern organizational setting. The reasons for this shift are evident in the obsolescence of knowledge and continual change wrought by technology, which places a premium on qualities of adaptability, creativity, and a spirit of inquiry. The need is for persons who, rather than responding to new conditions with a stock set of concepts and methods, instinctively mistrust the standard way of perceiving and solving the problems, and formulate a creative response through development of a totally new approach to the situation. These qualities are to be valued in leaders at all echelons of society, but especially in Army officers . . .⁵¹

While the Norris Board called for greater emphasis on education and identified the importance of adaptability, it did not state a preferred mix for education and training during pre-commissioning. The board did, however, indicate that instruction at the junior officer level, the Basic Course, should consist of a 75 to 25 percent ratio of instructor-centered (training) to student-centered (education) approach to learning.⁵² In this light, and in the absence of an unequivocal position concerning a preference for education during pre-commissioning studies, one can assume that the Army's emphasis for cadet studies remained on training.

The end of the Vietnam War, observations of the 1973 Arab-Israeli War, and a renewed focus on the Soviet threat to Europe reinforced the Army's perception that training at the lowest

⁴⁹ Department of the Army, *Review of Army Officer Educational System*, Board review prepared by Maj. Gen. Frank W. Norris, 1971, 8-4 to 8-6. Like the earlier Eddy Board, most of the Norris Board's discussion centered upon overcoming the undereducated hump within the officer corps.

⁵⁰ Ibid., 2-3 to 2-9. The discussion of education was derived from observed changes in domestic social and educational, technological, and operational conditions that impacted leader development.

⁵¹ Ibid., N-4.

⁵² Ibid., 9-6.

levels was essential to its ability to overcome the challenge of a technologically equal and numerically superior enemy. Based upon his wartime experiences, Gen. William DePuy, TRADOC's first commander, argued strongly in favor of training over education at the junior officer level.⁵³ Understanding the debate contrasting education and training, Gen. DePuy believed that junior officer development had become too academic and saw training at the junior officer level as essential for success in combat, "a deadly come-as-you-are-affair."⁵⁴ Gen. DePuy stated, "officer training, particularly at the platoon level, had to *prepare tank and [infantry] platoon leaders, not generic officers* [emphasis is original]. . . . Infantry and armor soldiers operate in the 'dirty environment' of terrain, smoke, night and enemy, a combination of variables difficult to replicate with the precision possible in a laboratory. Close combat is messy."⁵⁵ In this environment, the Army commissioned the Review of Education and Training for Officers (RETO) Study.

The RETO Study, whose underlying theme was a leader's requirement to "think and decide," was the most extensive study since the Haines Board.⁵⁶ Unlike previous studies of officer development, the 1978 RETO Study did not limit its discussion and recommendations concerning a cadet's formative years to issues pertaining to cadet recruiting, retention, and scholarships. Even as the Army contended with a poor public image in the wake of Vietnam, massive doctrinal reform, and transition to an all volunteer force, the RETO Study did not focus the efforts of pre-commissioning recommendations in a manner inconsistent with the realities of

⁵³ Henry G. Gole, *General William E. DePuy: Preparing the Army for Modern War* (Lexington, KY: The University Press of Kentucky, 2008), 251.

⁵⁴ Ibid., 251 and 237.

⁵⁵ Ibid., 245.

⁵⁶ Department of the Army, *A Review of Education and Training for Officers: Volume 1 of 5, An Overview*, Board review prepared by Maj. Gen. Benjamin L. Harrison, 1978, III-3 to 4.

the pre-commissioning environment.⁵⁷ Instead the study recognized that pre-commissioning and undergraduate studies were, by their nature, educationally oriented and proposed recommendations that fit within or around the construct of the existing, widely diverse pre-commissioning programs.⁵⁸ The RETO study therefore recommended several alternatives to standardize the level of training and education cadets received prior to their arrival at basic branch courses. These recommendations included the establishment of programs of instruction similar to the Army's Officer Candidate School program or the U.S. Marine Corps' Platoon Leader's Course to provide consistent, standardized military training outside the college environment. Additionally, the RETO study recommended the establishment of unambiguous junior officer training standards delineated in Military Qualification Standards (MQS) appropriate at each level of an officer's early Army career.⁵⁹ Save the establishment of the MQS, these measures paralleled some of the recommendations forwarded by the earlier Masland and Lyons study and the 1949 Service Academy Board. These recommendations seemed to reconcile the Army's need for adequately trained junior officers with long standing calls for an educational foundation that prepared junior officers for more than just their first assignment. Interestingly, of these RETO Study recommendations, only the implementation and use of the MQS during pre-

⁵⁷ Department of the Army, 1958 Williams Board report, 163. Earlier studies of cadet training and education identified the Army's desire to overcome the inability of pre-commissioning sources to produce officers prepared for troop duty upon graduation. The Williams Board for example stated that "the long-term objective of the precommission training program should be the production of officers who are prepared for immediate and effective assumption of troop duty."

⁵⁸ Department of the Army, *A Review of Education and Training for Officers: Vol. 1*, III-18 to 19.

⁵⁹ Ibid., IV-2, V-3 to 7; Department of the Army, *A Review of Education and Training for Officers: Volume 2 of 5, Career Progression*, Board review prepared by Maj. Gen. Benjamin L. Harrison, 1978, Annex D. The stated purpose of MQS I, according to the 1978 Harrison Board report (RETO) was to "establish the military skills, knowledge, and education which are required of an officer to embark upon a successful career in the U.S. Army," D-1-5. The MQS was divided into two component parts, required military skills and knowledge, and professional military education. Military skills and knowledge consisted of the common individual and collective skills required of all officers. Professional military education provided the officer with the foundation upon which judgment, knowledge and conceptual skills were built and support performance at higher levels. This component required a baccalaureate degree with studies that touched upon "five fields of study: human behavior, written communication skills, military history, national security policy, and management," D-1-6.

commissioning persisted, indicating the Army's preference for military training to remain on campuses. Moreover, the Army's establishment of extensive learning objectives and task lists to guide officer leader development, typical of competency-based approaches to learning, shaped leader development strategies to the present.⁶⁰

While the RETO study, like previous studies, identified the value in education and training, the RETO study's establishment of MQS I training and validation requirements prior to junior officer advancement again emphasized a greater importance for training at the pre-commissioning level. Despite an apparent preference for training at the lowest levels, as in previous eras, the dichotomous view of the relationship between education and training persisted within the Army through at least the end of the Cold War. In 1983 for example, Colonel Huba Wass de Czege argued that "the only way to develop an adaptive officer corps" was to develop an officer education system "which emphasizes 'how-to' training based upon an education in the theories and principles of warfighting."⁶¹ Conversely, in a later article, Gen. William Richardson argued that "the best way to learn is to train."⁶² The general also argued that "if an event does not [prepare the Army for war], we should not train it. We do not have time."⁶³ The 1985 Professional Development of Officers Study (PDOS), like the RETO Study before it, covered pre-commissioning at length. However, unlike the RETO Study, the PDOS recommended the Army step away from its historical preference for more training, even at the pre-commissioning level.

⁶⁰ Department of the Army, *A Review of Education and Training for Officers: Vol. 1*, III-7 to 16; *A Review of Education and Training for Officers: Vol. 2*, D-1.

⁶¹ Department of the Army, *Professional Development of Officers Study: Volume 1 – February 1985*, Board review prepared by Lt. Gen. Charles W. Bagnal, 1985, 29. Brig. Gen. (retired), then colonel, Huba Wass de Czege's findings were cited in volume 1 of the 1985 Bagnal Board report (PDOS).

⁶² William R. Richardson, "Training: Preparation for Combat," *Military Review* 77, no. 1 (January–February 1997): 86. *Military Review* first published Gen. Richardson's article in June 1986.

⁶³ *Ibid.*, 85.

The PDOS, like the RETO Study, emphasized the importance of officer education and a leader's capability to think, but attempted to better define the relationship between the two forms of learning. Despite past calls for better balance between officer education and training, the PDOS analysis of the Army's officer development system indicated that past efforts proved less than successful. The PDOS therefore continued the call for more education. The study stated,

Major portions of the current resident schooling system are based on instructional and training procedures that allocate the majority of time to teaching highly perishable data and information and insufficient amounts of time to increasing cognitive ability, decision making skills or in expanding an officers' frame of reference. . . . The time available must focus on the things that make a difference.⁶⁴

The PDOS not only emphasized education, but recommended that the methodology used to educate and train officers be changed to ensure effective implementation of leader development programs. To correct this problem, and better focus instructional efforts, the PDOS established a philosophy for officer education and training, something it recognized as absent from previous studies of officer development.⁶⁵ The PDOS identified several interrelated, underlying factors that formed the theoretical basis for an effective officer development system: individual motivation, adult learning cycle, education, training, commander's intent, frames of reference, decision making, and cognitive complexity.⁶⁶ Figure 1 below depicts the PDOS theoretical basis or framework for leader development.

⁶⁴ Department of the Army, *Professional Development of Officers Study: Volume 1*, xxviii.

⁶⁵ Ibid., 36.

⁶⁶ Ibid., 37.

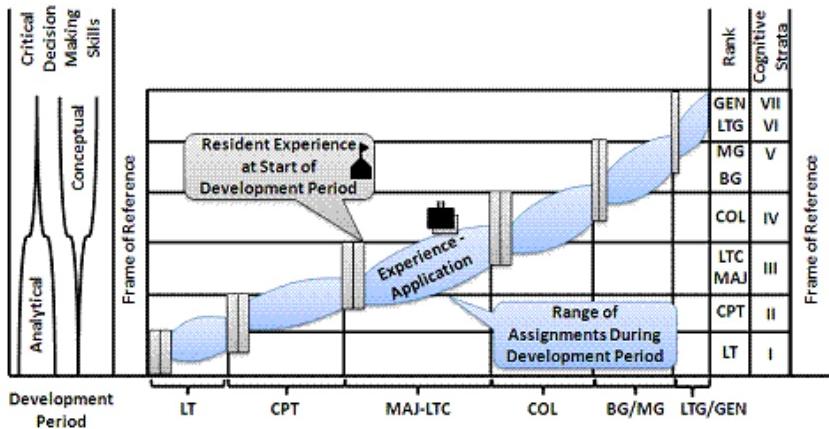


Figure 1. Combining Theory, Roles and Development Periods into a Professional Development Framework (Adapted from the *Professional Development of Officers Study*, 1985)⁶⁷

The PDOS provided the Army's first attempt to nest the concepts of training, education, and experience to effectively develop the Army's officers. This study also established, for the first time, the development of adaptive leaders as an important goal and challenge to the Army's leader development system.⁶⁸

In terms of pre-commissioning training and education, the PDOS recommended the use of small group instruction to provide cadets the best means for gaining detailed understanding of subject matter.⁶⁹ The PDOS also expected that cadets would receive "as broad-based an education as possible so as to acquire those cognitive skills necessary for progressive development of decision making skills through a military career. In conjunction with the broad-based education,

⁶⁷ Department of the Army, *Professional Development of Officers Study: Volume 1*, 51-54. A detailed discussion of the PDOS theoretical basis for officer education and training is provided in Chapter IV of the study.

⁶⁸ Ibid., 21. The PDOS stated, "The orchestration and synchronization of warfighting assets has become too complex to ignore. We must develop officers: (1) Who know *how* to think, rather than only *what* to think about [emphasis of both words is original] (2) Whose decision skills include an ability to conceptualize, to innovate and to synthesize information while under stress; (3) *Who are able to adapt to the unexpected* [emphasis added] and . . . are able to temper an understanding of doctrine with the willingness to take reasoned, measured risk when necessary . . . "

⁶⁹ Department of the Army, *Professional Development of Officers Study: Volume 1V – Development Periods*, Board review prepared by Lt. Gen. Charles W. Bagnal, 1985, AA-2.

military skills training . . . should be as experiential as possible.”⁷⁰ The PDOS also recognized two important weaknesses in existing junior officer development programs. The first weakness existed within the newly established MQS system and the other in officers’ basic educational skills. In terms of the MQS, the study determined that the 64 MQS I tasks required for cadet training and certification was excessive.⁷¹ In terms of basic educational skills, the study found that at least 25 percent of newly commissioned officers demonstrated weakness in reading, writing, and math (three R’s).⁷² To remedy these shortcomings, the study recommended the Army shorten the MQS I list to 25 critical tasks to improve the quality of instruction in the remaining tasks. The study also recommended the establishment of improved screening measures to ensure only qualified candidates were admitted into officer producing programs.⁷³ The PDOS provided the most comprehensive and holistic study of junior officer development requirements to date. In fact, its emphasis on education at the pre-commissioning level was a shift from previous studies that were more concerned with recruitment, retention, and training.

The importance of training to the Army’s ability to accomplish its mandate was, as it is today, an undeniable fact. Gen. Carl E. Vuono, then Army Chief of Staff, highlighted that reality on the eve of Operation Desert Storm when he wrote that training was “the decisive factor in the outcome of battle and the ultimate determinant of the fate of the nation . . . for it is training that prepares soldiers, units and leaders to fight and win in combat.”⁷⁴ The Army’s central focus on tough and realistic training for war, technological innovation, and the development of highly

⁷⁰ Department of the Army, *Professional Development of Officers Study: Volume IV – Development Periods*, Board review prepared by Lt. Gen. Charles W. Bagnal, 1985, AA-2.

⁷¹ Ibid., AA-1-1.

⁷² Ibid., AA-1-2.

⁷³ Ibid., AA-1-1 to 1-2.

⁷⁴ Carl E. Vuono, “Training and the Army of the 1990s,” *Military Review* 77, no. 1 (January–February 1997): 79. This article was reprinted from a previous 1990 publication of *Military Review*; Department of the Army, *FM No. 7-0*, 1-5. The Army training manual promotes a similar level of importance to training, stating that “effective training is the cornerstone of operational success,” but this view is offset by equally strong assertions concerning the importance of education to operational success.

skilled and capable leaders was critical in rebuilding the dispirited post-Vietnam Army. The Army's operational success in Operation Just Cause in 1989 and its lightning quick success during Operation Desert Storm in 1991 provided ample proof of the advantages of a well trained Army.⁷⁵

Following the First Gulf War, as the scope of junior officer responsibilities increased and the complexity of operational requirements expanded, academics and military writers challenged the effectiveness of the post-Vietnam Army's training-focused leader development strategies. The Army's operational successes and failures in Somalia from 1992-1993 and the former Yugoslav Republics since 1995 are two operational examples that encouraged continued discussion over the proper emphasis for leader development strategies within the Army. As the PDOS might indicate, however, the debate over education and training grew to emphasize a more integrated view of the relationship between education and training, although the view that officer development comprised two separate endeavors (training and education) persisted.

Following the PDOS, the call for adaptability began to take root and the best means for developing adaptive leaders drifted away from the historically dichotomous view of the relationship between education and training. The 1997 Officer Personnel Management System (OPMS) XXI Study, like the PDOS, recognized the importance of adaptability, the interactive nature of training and education, and the importance of experience.⁷⁶ While the study's overall orientation reflected the Army's tendency to favor training over education, its recommendations addressed each of the three pillars of leader development. For example, the study argued the importance of grounding junior officers in the Army's "muddy boots culture" and sustaining

⁷⁵ Robert H. Scales Jr., Terry L. Johnson, and Thomas P. Odom, *Certain Victory: The U.S. Army in the Gulf War* (Washington, DC: Headquarters, Department of the Army, 1993), iii.

⁷⁶ Department of the Army, *OPMS XXI Final Report: Prepared for the Chief of Staff, Army*, Board review prepared by Maj. Gen. David H. Ohle, 1997, 1-2, 7-10. The study broadened what it termed the life-cycle function of training to encompass all officer training, education and professional development into a wider function it renamed develop. In the develop function the study addressed training, educational and experiential considerations for officer development.

training philosophies based on proven models.⁷⁷ While the theme of grounding leaders in the Army's "muddy boots culture" was consistent, the study also recommended that institutional systems, once primarily focused on training warfighting skills, expand curricular focus "to include the development of moral judgment and advanced cognitive skills revolving around analysis and creativity."⁷⁸ In terms of experience, the study cited an Army After Next report that stated that the development of effective leaders with superior intuition and cognitive flexibility was essential to meet the future demands of a complex, lethal and dispersed battle field. To gain the needed experience, the study argued that officers required more operational time in units.⁷⁹ The OPMS XXI Study recognized the importance of the three pillars of leader development; however, like other studies it focused reform beyond the pre-commissioning level, leaving the question of an appropriate balance during pre-commissioning unanswered.

In addition to continued calls for greater emphasis on officer education and broadening experiences beyond military training, academics also recognized the importance for leader adaptability. Richard Kohn, a professor of history at the University of North Carolina at Chapel Hill, argued that participation in broadening experiences, use of exchange programs, even during ROTC, and graduate school were essential to officer development.⁸⁰ Professor Kohn, like many academics before him noted the importance of an educational focus on social sciences and softer subjects such as "history, international relations, strategic studies, and similar subjects" over more

⁷⁷ Department of the Army, *OPMS XXI Final Report*, xvi, 7-10. Proven models included Mission Essential Task List (METL)-based training, use of task, condition, and standards-based training, and use of after-action reviews (AAR).

⁷⁸ Ibid., 7-10. Interestingly, the study's specific recommendations for curricular change at the pre-commissioning level cited a greater need for officers educated in the hard sciences of math, science and engineering, 7-12.

⁷⁹ Ibid., 4-3. The study also identified the development of rapidly adaptable and cohesive teams as essential to meeting future operational demands.

⁸⁰ Richard H. Kohn, "An Officer Corps for the Next Century," *Joint Forces Quarterly*, no. 18 (Spring 1998): 77.

technological subjects.⁸¹ Kohn believed that a focus toward softer subjects better prepared officers for the disparate missions of the future, enhanced critically skills, and developed in officers an ability “to distinguish explicitly between intellectual rigor and hogwash.”⁸² That same year, during the Professional Military Conference for the 21st Century Warrior, Harry Thie, a researcher at the Rand Institute, discussed desired officer qualities in terms of what a leader does and who a leader is. In terms of what a leader does, Dr. Thie believed that training and education effectively developed many competencies associated with good leadership. However, in terms of who a leader is, Thie believed that enduring character traits were “not easily changed later in life.”⁸³ As such enduring character traits were not easily developed through training and education “except at the margin.”⁸⁴ Among Dr. Thie’s five enduring character traits was adaptability.⁸⁵

Recent studies often cited the 2003 Army Training and Leader Development Panel (ATLDP) Officer Study and Dr. Leonard Wong’s 2004 study of junior officers in post-war Iraq as points of departure concerning the Army’s growing emphasis on adaptive leadership. Past studies identified the need for leader adaptability, however, the Army’s ability to ignore that requirement has disappeared in the post-9/11 operational environment. The ATLDP Officer Study identified two requisite “metacompetencies” to serve as roadmaps for leader development and operational

⁸¹ Kohn, “An Officer Corps for the Next Century,” 77.

⁸² Ibid.

⁸³ Harry J. Thie, “Session 5: Human Capital” (speaker remarks at the Conference on Military Education for The 21st Century Warrior, Naval Postgraduate School and Office of Naval Research, Monterey, CA, January 15-16, 1998), 5-17 to 5-23. During Session 5, several other speakers presented views on leader development that focused on the importance of developing leaders of character, liberal education, and broadening experiences. Other speakers included for example, Professor Richard H. Kohn (5-25 to 5-32) and Indiana congressman Steve Buyer (5-1 to 5-6).

⁸⁴ Ibid., 5-19.

⁸⁵ Ibid. The remaining five enduring character traits were cognitive ability, physical ability, conscientiousness, and versatility.

success in ambiguous operating environments: self-awareness and adaptability.⁸⁶ Concerning

these two metacompetencies, the ATLDP Officer Study stated,

Army leaders should focus on developing the ‘enduring competencies’ of self-awareness and adaptability. . . . Adaptability is the ability to recognize changes to the environment; assess that environment to determine what is new and what to learn to be effective; and the learning process that follows . . . all to standard and with feedback. Self-awareness and adaptability are symbiotic; one without the other is useless. . . . Adaptability without self-awareness is irrationally changing for change sake, not understanding the relationship between abilities, duties, and the environment.⁸⁷

The ATLDP Officer Study emphasized the importance of these enduring leader competencies throughout its discussion of officer education.⁸⁸ Despite the Army’s continued emphasis on leader development, the ATLDP Officer Study found that the “Army training and leader development programs [did] not develop self-aware and adaptive leaders.”⁸⁹ The study’s recommendations attempted to remedy this shortfall, but like previous studies it reserved its discussion of training and educational requirements and recommendations to post-commissioning.⁹⁰ For example, the study recommended the establishment of a three-phased officer basic course to better prepare newly commissioned officers for service.⁹¹ Despite the absence of discussion concerning pre-

⁸⁶ Department of the Army, *The Army Training and Leader Development Panel Officer Study Report to the Army*, 2003, OS-2 to OS-3.

⁸⁷ Ibid., OS-3.

⁸⁸ Ibid., OS-11.

⁸⁹ Ibid., OS-17.

⁹⁰ Ibid., OS-2 to OS-3. The study’s recommendations included the establishment of single training and leader development proponency, improving the capability of the force to pursue lifelong learning, improving the Army’s training and leader development model to include assessment and feedback mechanisms, and establishment of mechanisms to continuously evaluate and manage the Army’s training and leader development process.

⁹¹ Terry L. Sellers, “Basic Officer Leader Course: The ‘So What’ in Junior Officer Education Today,” *Infantry* 97, no. 5 (September-October 2008): 6-8; Gina Cavallaro, “Leadership course for new lieutenants mixed,” *Army Times* (December 2009), under “Army News,” http://www.armytimes.com/news/2009/12/army_leadership_training_121409w/ (accessed March 31, 2010). The Army implemented a three phase initial entry training and education program for junior officers in 2006, the Basic Officer Leaders Course (BOLC). The first phase of training, BOLC I, took place during pre-commissioning. The second phase, BOLC II, a five-week course of instruction was held at one of two sites (Fort Sill, OK, and Fort Benning, GA) immediately after commissioning. The last phase, BOLC III, held at one of the Army’s traditional branch specific schools, took place upon an officer’s completion of

commissioning training and education, the study's conclusions, in addition to the realities of combat noted in Wong's study of junior officer leadership in Iraq, significantly increased the level of attention directed toward the development of adaptability in the Army's junior officers.

Much of the recent literature and studies of leader development have centered on the development of adaptive leaders and organizations.⁹² Like most of the Army's previous studies, many of these writings have shared a relatively common appreciation for the importance of training and have placed greater emphasis on the importance of experience in the development of adaptability. The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) sponsored two such studies. Elaine D. Pulakos and her colleagues conducted the first study in 1999, Rose A. Mueller-Hanson and her fellow researchers conducted the second study in 2005. In the 1999 study of *Adaptability in the Workplace*, Pulakos identified six dimensions of adaptive performance.⁹³ Based upon case study analysis, the Pulakos study found that an individual's propensity for adaptability could be identified and adaptive performance trained.⁹⁴ While the Pulakos study did not identify the specific underlying "knowledge, skills, abilities and other characteristics" predictive of adaptive performance, the study recommended that doing so could facilitate the selection of individuals whose adaptive propensities matched the adaptive

BOLC II. Interestingly, after only four years, the three phase initial entry training and education program was returned to its traditional two phase approach in early 2010, when BOLC II instruction was cancelled.

⁹² Studies of adaptive leadership exist in business literature as well. Three often cited experts on adaptive leadership and adaptive organizations in business are Warren G. Bennis, Ronald A. Heifetz, and Peter M. Senge. Warren G. Bennis and Robert J. Thomas, "Crucibles of Leadership," *Harvard Business Review* in 2009 CGSC Text, *L100: Developing Organizations and Leaders* (Fort Leavenworth, KS: Command and General Staff College, 2008); Ronald A. Heifetz, *Leadership Without Easy Answers* (Cambridge: The Belknap Press of Harvard University Press, 1994); Peter M. Senge, *The Fifth Discipline: The Art & Practice of the Learning Organization* (New York: Bantam Doubleday Dell Publishing Group, Inc., 1990).

⁹³ Elaine D. Pulakos et al., *Adaptability in the Workplace: Development of a Taxonomy of Adaptive Performance* (Arlington, VA: Personnel Decisions Research Institutes, 1999), 6-10. The six dimensions of adaptive responses identified by the Pulakos study are solving problems creatively, dealing with uncertain/unpredictable work situations, learning new tasks, technologies, and procedures, demonstrating interpersonal adaptability, demonstrating cultural adaptability, and demonstrating physically oriented adaptability.

⁹⁴ Ibid., 27-28.

requirements of specific occupations or tasks.⁹⁵ In terms of training adaptive performance, the Pulakos study did not identify specific developmental methodologies that would result in adaptability. Instead, the Pulakos study, which focused primarily on defining adaptability, simply argued that a “potentially effective way to train employees to adapt is to expose them to situations . . . that require adaptation.”⁹⁶

Building upon the Pulakos study, Mueller-Hanson and colleagues reduced Pulakos’ six dimensions of adaptability to three overarching types of adaptability: mental adaptability, interpersonal adaptability, and physical adaptability.⁹⁷ Unlike previous studies of leader development, the 2005 Mueller-Hanson Study focused specifically on approaches to developing adaptive leadership. Mueller-Hanson and her associates identified two universally applicable principles for developing adaptable leaders. The first was the importance of experience. The second principle was the importance of “an iterative process of practice, feedback, and practice.”⁹⁸ The study then discussed the application of these principles within the Army’s three training domains: the institutional, operational, and self-development domains. Within the institutional domain, the Mueller-Hanson Study recognized value in the Army’s ‘crawl-walk-run’ methodology, citing the importance of grounding future experiences in subject matter knowledge.⁹⁹ Within the operational domain, Mueller-Hanson and her colleagues observed that while most leaders learned from on-the-job experiences, real world or training experiences did

⁹⁵ Pulakos, *Adaptability in the Workplace*, 27.

⁹⁶ Ibid., 28.

⁹⁷ Rose A. Mueller-Hanson et al., *Training Adaptable Leaders: Lessons from Research and Practice* (Arlington, VA: U.S. Army Research Institute for Behavioral and Social Sciences, 2005), 2.

⁹⁸ Ibid., 9.

⁹⁹ Ibid. The study also identified several other teaching interventions beneficial to training adaptability: the incorporation of principles like “advanced organizers, mastery orientation, discovery learning, and deliberate practice.”

not necessarily result in the development of adaptive behaviors.¹⁰⁰ To get the most from experiences, whether in training or otherwise, the study found that leaders had to experience adaptability. The study further argued that after-action-reviews (AAR) improved leader recognition and understanding of lessons from personal experiences.¹⁰¹ Recognizing the potential flaws in the AAR and learning process, Mueller-Hanson also recommended establishing a command climate that fostered open communication and shared critical evaluation of strengths and weaknesses.¹⁰² In terms of the self-development domain, the Mueller-Hanson Study argued that leaders needed to actively encourage and reward subordinates' efforts to pursue self development goals.¹⁰³ In terms specific to the development of adaptability in junior leaders, Mueller-Hanson and her associates stated,

Adaptive performance is a complex construct and could not be expected to be easily mastered through a single course or a few training exercises. Developing adaptive performance will likely require a substantial investment in an integrated training system from 'cradle to grave.' Junior level officers need to be exposed to adaptability training right from the start of their training through classroom and field exercises, during the early part of their careers through operational experiences and feedback mechanisms, and continuing throughout their careers through ongoing professional development. Self-development activities should occur continuously, and officers should be held accountable for both their development efforts and their adaptive performance . . .¹⁰⁴

In this study, and an article for *Special Warfare Magazine*, Mueller-Hanson and associates aligned various attributes, skills, and characteristics of adaptability along a trainability continuum.

In Mueller-Hanson's *Special Warfare Magazine* article, the researcher and co-authors evaluated six character dimensions that indicated an individual's likelihood to perform in an adaptive manner: intelligence, trainability, judgment, influence ability, physical fitness, and motivation. These adaptive character dimensions were in turn composed of a longer list of

¹⁰⁰ Mueller-Hanson, *Training Adaptable Leaders*, 15.

¹⁰¹ Ibid.

¹⁰² Ibid., 15-16.

¹⁰³ Ibid., 19.

¹⁰⁴ Ibid., 24.

components that made up the “whole man” and fell along a spectrum of adaptive characteristics from stable, less trainable attributes at one end of the spectrum to malleable, more trainable attributes at the other.¹⁰⁵ Figure 2 below illustrates the continuum of adaptability characteristics.

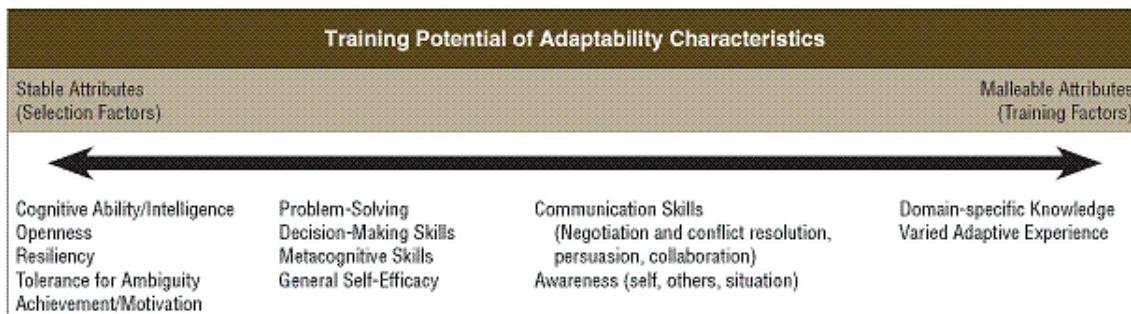


Figure 2. Training Potential of Adaptability Characteristics¹⁰⁶

Known for its ability to prepare special operations personnel to confront ambiguity, uncertainty, and for independent operations in complex operational environments, the John F. Kennedy Special Warfare Center and School cadre emphasized the importance of the candidate selection process to ensure a higher degree of success and adaptability among special operations forces. However, given the manpower requirements of the active force, the Army as a whole has not had the luxury of using a similarly rigorous screening process. While selection identified candidates most likely to adapt, the training phase of the Special Forces Qualification Course focused on training principles that promoted a leader’s inherent adaptability. The article articulated the following training principles,

- Providing a foundation of job-relevant knowledge.
- Developing adaptability-related skills such as communication, negotiation, influence, decision-making and problem-solving.

¹⁰⁵ Rose A. Mueller-Hanson et al., “Developing Adaptive Leaders,” *Special Warfare* 20, no. 4 (July-August 2007): 29-30. <http://www.soc.mil/swcs/swmag/Assets/07Jul.pdf> (accessed February 21, 2010). These characteristics related to adaptability were also articulated in Mueller-Hanson’s 2005 ARI Study, *Training Adaptable Leaders: Lessons from Research and Practice*, 4-9.

¹⁰⁶ Ibid., 29.

- Providing opportunities for students to build experience through repeated practice and feedback.
- Developing self-awareness through feedback from multiple sources.¹⁰⁷

More stringent cadet selection processes might improve the Army's ability to develop adaptive leadership in selected, adaptability prone officers, however, a more relevant approach must instead allocate the time and resources needed to institute the Special Forces training principles earlier in an officer's career.¹⁰⁸

Like the Mueller-Hanson ARI Study, a study conducted by the Institute for Defense Analysis (IDA) focused on the development of adaptability. The IDA Study argued that the classic training methodologies based upon training plan execution ignored individual, as well as unit or staff, adaptive training requirements and failed to train for adaptability.¹⁰⁹ The IDA researchers, however, stated that adaptive training events should not replace learning associated with traditional training in tactics, techniques, and procedures (TTPs), the use of tasks, conditions, and standards, nor replace planning. The study merely recommended that training in today's operational environment go beyond traditional approaches.¹¹⁰ As such, the IDA Study recommended the need for experiential activities, an encouraging command climate, the effective use of AARs, and recognized that "learning adaptability by itself [was] inadequate."¹¹¹ Specific to junior leader development, the IDA Study recommended that junior officers, leaders with little

¹⁰⁷ Mueller-Hanson, "Developing Adaptive Leaders," 29. The study concluded with a list of useful points derived from the Special Forces training model which included ensuring "that training and operational climates are conducive to and support adaptive performance," second, the need to "build ambiguity and uncertainty into training events," thirdly, "train for learning and mastery rather than for adherence to standards; emphasize outcomes and mission success in addition to processes and procedures," the need to "use multi-rater feedback to improve self awareness," and other recommendations, 32.

¹⁰⁸ Vandergriff, *Raising the Bar*, 83, 86. Studies like Vandergriff's *Raising the Bar* have recommended starting adaptive approaches to leader development earlier in an officer's career.

¹⁰⁹ John C.F. Tillson et al., *Learning to Adapt to Asymmetric Threats* (Alexandria, VA: Institute for Defense Analysis, 2005), 13.

¹¹⁰ Ibid., 20.

¹¹¹ Ibid., 35. In terms of experience the study recommended leaders be exposed to a "wide range of training events with frequently shifting tasks and conditions so that the learner is routinely forced to adapt to new situations and is never allowed to get comfortable in any given set of tasks."

experience and intuition, develop a large range of mission experience early in a military career.¹¹²

In situations where linear, analytic decision making process proved inadequate to junior officers, the study also concluded that “the development of cognitive readiness, specifically intuition skills in parallel with critical/creative thinking skills, promise[d] to prepare leaders at all levels to adjust to the uncertainties and complexities associated with future war.”¹¹³ While Army studies in the post-9/11 era, like previous formal studies focused on the importance of training and operational experience in leader development, the debate over an effective balance between education, training, and experience continued.

Continuing the call for greater education in officer development, Dr. James J. Carafano and Alane Kochems of the Heritage Foundation argued for the growing importance of graduate level education early in the careers of every officer. The authors believed that graduate level education provided officers operating in dispersed locations with the critical thinking and decision making skills needed in today’s complex, unpredictable, and ambiguous operational environment.¹¹⁴ Maj. Gen. (retired) Robert H. Scales, on the other hand, argued for an understanding of the interactive relationship between education and training in the development of junior leaders. Likening the need for a contemporary learning revolution to the DePuy-led revolution in training and education in the post-Vietnam War era, Maj. Gen. Scales stated that today’s officer leader development system required a blend of training and education methods to produce junior leaders capable of both following orders and thinking on their feet. Maj. Gen. Scales wrote,

¹¹² Tillson, *Learning to Adapt to Asymmetric Threats*, 44.

¹¹³ Ibid. The Army’s Military Decision Making Process (MDMP) is an example of a linear, analytical decision making process.

¹¹⁴ James Jay Carafano and Alane Kochems, “Rethinking Professional Military Education,” *Executive Memorandum No. 976* (memorandum, The Heritage Foundation, 2005), 1-2. The authors recommended that graduate schooling take place before the age of 30.

The distinction between training and education has become blurred, so much so that the two often are combined in several important aspects. Training prepared a young Soldier to deal with expected situations on the battlefield. Education prepares him to deal with uncertainty. On the modern battlefield, a Soldier knows that to survive he must be able to use his weapons and follow his leaders' orders. But he is also expected to demonstrate resourcefulness, initiative, creativity, and inventiveness, all demanded by a battlefield where confronting the unexpected and new is routine.¹¹⁵

In *Raising the Bar*, Donald Vandergriff, a retired Army major and former professor of military science, provided a similar position on the interactive nature of education and training in junior officer development. Vandergriff stated, "It is a common Army cultural error to use the word 'training' to substitute for education. Both mean something different in regards to cognitive development and the subsequent reinforcement of that development. Both concepts must support one another in the creation of adaptive leaders."¹¹⁶ Unlike previous studies, Vandergriff's study focused entirely on the creation of adaptive junior leaders and addressed the importance of beginning educational reform 'where it all begins,' during pre-commissioning.¹¹⁷ Like the IDA Study, Vandergriff discussed the Army's need to move away from linear and mechanical approaches to junior officer development toward experienced-based approaches that accounted for the complexity of learning, challenged decision making abilities, and took advantage of the interactive nature of training, education, and experience.¹¹⁸

During this same period other studies of junior leader development and adaptability argued for a greater emphasis on training and experience over institutional education. For

¹¹⁵ Scales, "The Second Learning Revolution," 37.

¹¹⁶ Vandergriff, *Raising the Bar*, 42.

¹¹⁷ Ibid., 24; Chad Foster, "No 'Approved Solutions' in Asymmetric Warfare: Nurturing Adaptive Leadership in an Outcomes-Based Training Environment," *Assembly* (July-August): 28-29. In the July/August 2009 issue of *Assembly* Magazine, the U.S. Military Academy's flagship publication, Maj. Chad Foster praised Donald Vandergriff's approach to junior officer development. Maj. Foster stated, "ALM [Adaptive Leader Methodology] is an effective tool for teaching in an outcomes-based education and training (OBT&E) environment. Maj. Foster described ALM as a methodology that emphasized opportunities for cadets to experience decision making under stressful, decide-brief-defend your decisions amongst peers, yet nurturing conditions.

¹¹⁸ Vandergriff, *Raising the Bar*, 25-26, 45-49.

example, Col. Todd McCaffrey's 2007 monograph studied the development of junior officer intuition, or 'gut-feel,' arguing intuition's importance to junior leader adaptability.¹¹⁹ Utilizing the research of Dr. Gary Klein, Dr. Robin Hogarth, and others in the field of intuition or naturalistic decision making, Col. McCaffrey believed that junior officer training opportunities needed to focus on developing the leader's "repository of tacit knowledge and contextually accurate expertise."¹²⁰ Col. McCaffrey also stated,

It seems logical that if [Army leaders] can improve the rate at which junior officers develop both domain-specific tacit expertise and the confidence to rely on the intuition that knowledge provides, these officers could begin to more rapidly apply their conscious faculties toward developing agile and adaptive solutions to challenging military problems, a critical capability in today's [volatile, uncertain, complex, and ambiguous] environment.¹²¹

Like the ARI and IDA studies of adaptability, Col. McCaffrey recognized the importance of experience, a positive command climate, and accurate, timely feedback in the development of junior officer intuition.¹²² The colonel's study also argued that while institutional learning opportunities provided junior officers with a foundation of knowledge and training, it was the operational force that provided the best opportunity to develop leaders with intuitive decision making abilities through experience.¹²³

¹¹⁹ Todd B. McCaffrey, "Gut Feel: Developing Intuition in Army Junior Officers" (Strategic research project monograph, U.S. Army War College, 2007). Other studies focused on the development of intuitive decision making include the following: Robin M. Hogarth, *Educating Intuition* (Chicago: The University of Chicago Press, 2001); Gary Klein, *Making Decisions in Natural Environments* (Alexandria, VA: U.S. Army research Institute for the Behavioral and Social Sciences, 1997); Arthur J. Athens, "Unraveling the Mystery of Battlefield Coup d'oeil," (School of Advanced Military Studies monograph, Command and General Staff College, 1993).

¹²⁰ Ibid., 11.

¹²¹ Ibid.

¹²² Ibid., 12-13.

¹²³ Ibid., 15.

In a recent article Maj. Gen. Robert Scales noted that the U.S. Army, like the British Army of World War I, was culturally biased toward “action rather than reflection.”¹²⁴ Given the Army’s involvement in Iraq and Afghanistan and the need for officers prepared to function in competitive environments against lethal enemies, the Army’s preoccupation with subjects other than education was understandable. However, the leader development approaches prescribed by recent military studies, approaches that emphasized the acquisition of experience through training, also devoted significant effort to the description of the cognitive processes associated with learning and developing adaptive behaviors. While many Army leaders emphasized the importance of training and experience in the operational domain, recent studies indicated that the Army as a whole developed an appreciation for the importance of an interactive approach to learning. This approach required training and experience supported by an effective education. TRADOC’s senior noncommissioned officer (NCO), Cmd. Sgt. Maj. David M. Bruner, supported such a view in an *NCO Journal* article. TRADOC’s senior NCO argued for equipping Soldiers with the appropriate level of training and education needed to effectively react in both familiar and unfamiliar circumstances. Drawing a distinction between adaptive behavior and reactive behavior, Bruner wrote, “the only factor that enables us to *adapt* [emphasis is original], that is, to pick and choose which habitual (and thus more natural and automatic) mental process to follow and which to override is education. Training and drills enable us to react. Education enables us to adapt.”¹²⁵ In a 2009 article for *Army Magazine*, retired colonels Gregory Fontenot and Kevin Benson stated that education was the “*sine qua non*” [emphasis is original] of an officer corps that must lead a general purpose and full spectrum capable force.¹²⁶ If Army efforts to develop

¹²⁴ Robert H. Scales Jr., “Too Busy to Learn,” *Proceedings* 136, no. 2 (February 2010). http://www.usni.org/magazines/proceedings/story.asp?STORY_ID=2195 (accessed April 17, 2010).

¹²⁵ David M. Bruner, “What is an adaptive leader?” *The NCO Journal* 18, no. 3 (Summer 2009): 22, 24.

¹²⁶ Gregory Fontenot and Kevin Benson, “Persistent Conflict or Containment: Alternative Visions of Contemporary Conflict,” *Army* 59, no. 9 (September 2009): 78. Colonels Fontenot and Benson rejected

adaptive leadership likewise focused only on training and operational experience without the requisite education it risks developing the type of leaders Maj. Gen. Scales warned of, leaders whose adaptive behavior reflects change for the sake of change.

Over the last 60 years, studies of the Army's officer education and training system consistently focused on learning and leader development periods occurring after commissioning. During the earliest studies, assessments of the ROTC focused primarily on the means for attracting and retaining cadets for career-long service. In terms of education and training, earlier studies recognized, and over time later studies accepted, that pre-commissioning sources were not sufficiently capable of preparing cadets for immediate assignment with troops. As such, the earliest studies established the need for post-commissioning orientation courses to bridge gaps in leader development to adequately prepare junior officers for troop duty. Later, Cold War era studies provided more extensive reviews of the Army's institutional officer development programs to include pre-commissioning and the ROTC. The more extensive reviews, the RETO and PDOS for example, often recommended changes beyond cadet procurement and retention such as the establishment of the MQS, which placed the emphasis of pre-commissioning leader development squarely on training basic military skills.

The historical literature and studies also indicated that the Army has traditionally held officer education and training in high esteem, deeming both as necessary in the professional development of officers. Despite the emphasis on education in officer leader development, studies indicated that the Army viewed education of greater importance for officers at the mid- to senior-grade levels where strategic leaders must understand 'how to think' versus 'what to think.' Conversely, academics consistently emphasized the importance of liberalized education programs

the notion of a strategic corporal or lieutenant. They recognized the strategic impact of junior leaders, but appeared to view the association of a "strategic" title with junior leadership as an opportunity for confusion in junior leader understanding of appropriate roles and responsibilities at the junior leader level. The colonels' argument for greater emphasis on education in theory and history was focused primarily at mid-grade officer level and above.

for officer development, but argued more forcefully for a greater emphasis on education during pre-commissioning for similar reasons, to better prepare officers for career-long service. The Army focused leader development programs during pre-commissioning and immediately afterward, on training military skills needed to prepare junior officers for immediate duty with Soldiers. The Army's acceptance that pre-commissioning leader development was inadequate to prepare junior officers for immediate service with troops, the establishment of the MQS, and the reduced time available during ROTC for leader development shaped the focus of ROTC programs more toward training than education. As the time available for training in ROTC programs decreased over time, the remaining opportunities for leader development naturally focused on skills training associated with the MQS validation. While a solid foundation in Army doctrine, tactics, basic principles was and continues to be essential, the methodologies used to train and develop cadets during pre-commissioning were often criticized by academics and military leaders as ineffective.

The call for adaptability in officers began in the mid 1980s, and reached its current level of interest within the Army as a result of ongoing operations in Afghanistan and Iraq. Concurrent with its growing interests in leader adaptability, the Army developed a better appreciation for the interactive nature of education, training, and experience, and the importance of each to effective leader development programs. The Army's most recent leader development strategy recognized the need for synergy between education, training, and experience for the successful development of adaptive junior leaders. The second section will explore adaptability further and examine the nature of the cognitive processes associated with the observed behaviors the Army has termed adaptive leadership.

Understanding Adaptive Leadership

The Army's current leadership regulations, doctrine, and policy recognize the requirement for adaptable leaders at every level. Likewise, academic literature and independent studies of military leadership and analyses of the Army's training and educational systems highlight the Army's need for adaptive leaders. The phrase "adaptive leadership," like the term "pentathlete," is now a representative catch-all for the professional Army leadership ideal.¹²⁷ Adaptive leadership is a moniker for a potentially long list of qualities, attributes, and competencies that make defining the prototypical Army leader for today's complex operational environment challenging. Unfortunately, long lists of leadership attributes and competencies challenge the Army's ability to effectively focus training and education to produce the adaptive leaders it needs, especially adaptive junior officers.¹²⁸ The intent of this section is not to generate a long list of training requirements or foundational subjects for study. Rather it is to gain an appreciation of adaptive leadership. This section of the monograph attempts to define adaptability, identify the common attributes, competencies and behaviors associated with adaptive leadership, and discuss the underlying processes that result in observed adaptive leadership to better understand how to better focus the Army's scarce training and educational resources to develop adaptive officers. To that end, this section reviews Army policy, doctrine,

¹²⁷ Department of the Army, *Regulation No. 600-100*, 1, 18. The Army defines an Army pentathletes as "innovative, adaptive, and situationally aware professionals who demonstrate character in everything that they do, are experts in the profession of arms, boldly confront uncertainty, and solve complex problems. They are decisive and prudent risk takers who effectively manage, lead, and change organizations. Pentathletes are professionally educated, and dedicated to lifelong learning; resilient, mentally and physically agile, empathetic, and self-aware; and confidently lead Soldiers and civilians, build teams, and achieve the Army's over-arching strategic goals, while engendering loyalty and trust."

¹²⁸ George Reed et al., "Mapping the Route of Leadership Education: Caution Ahead," *Parameters* (Autumn 2004): 53. Reed and his colleagues cite the work of Wong, Bliese and McGurk, "Military Leadership: A Context Specific Review" to argue that long, comprehensive lists of attributes and competencies could be counterproductive in the development of adaptive leaders. Wong and others stated, "In the military's zeal to address all aspects of systems level leadership, the lists . . . are actually *too* comprehensive. . . . the lack of parsimony makes it difficult to focus an institution's attention and resources on leader development . . ."

and other academic works on adaptability and adaptive leadership to gain an appreciation for adaptability and adaptive leadership that will provide direction in the development of meaningful learning experiences that support the development of adaptive junior officers.

Before discussing adaptive leadership, it is important to first define adaptability. The Army's leadership doctrine, *Field Manual No. 6-22* defines adaptability as "an effective change in behavior in response to an altered situation" and a tool for dealing with environmental and operational challenges.¹²⁹ Alternatively, the *Merriam-Webster Dictionary* defines adaptable from two perspectives. The first definition implies versatility where someone or something is "able to do many different kinds of things," and the other definition implies flexibility where someone or something is "capable of being readily changed."¹³⁰ Each of these definitions share a similar theme – change; however, the non-doctrinal definitions suggest that adaptability and perhaps adaptive leadership may reflect, contrary to the Army's definition, something more than just a leader's ability to recognize and react to environmental change. A review of the literature and various studies that addressed adaptability and adaptive leadership helps narrow the appropriate scope of attributes, competencies, and behaviors associated with the Army's ideal conception of applied leader adaptability.

¹²⁹ Department of the Army, *Field Manual No. 6-22*, 10-8 to 10-9, Glossary-2. In addition to the definitions that follow in the body of the monograph, other definitions from various studies exist and coincide with the Army's doctrinal understanding of adaptability. Doctrine's definition is also used by Mueller-Hanson's 2005 ARI Study of adaptive leader development. Mueller-Hanson, *Training Adaptable Leaders*, 2. Tillson's 2005 IDA study of adaptability defined adaptability as "the degree to which adjustments are possible in practices, processes, or structures of systems to projected or actual changes of climate. Adaptation can be spontaneous or planned, and be carried out in response to or in anticipation of changes in conditions." Tillson, *Learning to Adapt to Asymmetric Threats*, 5. Webster defines adaptable in terms of someone that is "able to adjust oneself to new or changed circumstances." Webster's New World College Online Dictionary, s.v. "Adaptable," under "Your Dictionary," <http://www.yourdictionary.com/adaptability> (accessed February 23, 2010).

¹³⁰ Merriam-Webster's Online Thesaurus, s.v. "Adaptable." <http://www.merriam-webster.com/thesaurus/adaptable> (accessed February 23, 2010); Dorland's Medical Dictionary for Health Consumers, s.v. "Adaptable," under "The Free Dictionary," [http://medical-dictionary.thefreedictionary.com/Adaptation+\(biology\)](http://medical-dictionary.thefreedictionary.com/Adaptation+(biology)) (accessed March 16, 2010). Adaptability, or adaptation from a biological perspective, describes the ability of organisms to change and survive in response to changes in their specific environments.

As previously noted, descriptions of adaptability and adaptive leadership tend to produce substantial lists of attributes and competencies that define the ideal Army leader. In his monograph detailing the development of adaptive leaders in the “crucible of Iraq,” Dr. Wong understood adaptability to be “*the* [emphasis added] leadership ability that the Army has been seeking for many years, yet has struggled to capture.”¹³¹ Among the list of observed behaviors identified by Wong were agility, awareness, confidence, creativity, ethical behavior, flexibility, good judgment, innovativeness, versatility, willingness to experiment and lead with minimal guidance, and comfort with the unknown, to name just a few. Other authors similarly identified long lists of adaptive leader qualities that included requirements such as self-awareness, intuitiveness, and the ability to be multi-skilled problem solvers, prudent risk takers, and Joint, interagency, intergovernmental and multinational (JIIM) operable in complex and ambiguous situations across the spectrum of conflict.¹³² In his 2007 thesis, Maj. Haynes equated adaptive leadership to pentathlete leadership, however, in doing so the list of attributes, competencies, and behaviors that defined adaptive leadership blurred with the equally daunting list of metacompetencies and competencies that defined a pentathlete leader.¹³³ The author’s final framework describing pentathlete competencies, which encompassed and simplified a range of competencies from various studies, was itself overly cumbersome and arguably not any better in

¹³¹ Wong, “Developing Adaptive Leaders,” 7.

¹³² Quinn, “Junior Officer Leader Development in an Era of Persistent Conflict,” 1-7; Mueller-Hanson, *Training Adaptable Leaders*, 4-9. The Mueller-Hanson ARI Study, like other studies of adaptability and adaptive leadership identified a list of character traits or skills associated with adaptive behaviors. The Mueller-Hanson list is composed of the following adaptability traits and skills. Personality traits: self-efficacy, resiliency, openness, achievement motivation, and other personality variables such as internal locus of control, tolerance for ambiguity, and willingness to learn; Cognitive skills: general cognitive ability, problem-solving and decision making skills, and metacognitive skills; Interpersonal skill: communication skills and self and other awareness; no specific list of traits or skills were associated with physical adaptability. The Mueller-Hanson Study did list domain specific knowledge and experience as key elements to adaptability.

¹³³ Haynes, “Transforming Junior Leader Development,” 10, 64-76. Haynes combined the terms to simplify the discussion of the Army leader ideal.

defining pentathlete leadership than the Army's simpler framework.¹³⁴ Despite the Army's rather simple definition of adaptability, its description of adaptive leadership provided, like other studies, an equally long list of attributes, competencies, and behaviors.¹³⁵ Despite tendencies to describe adaptive leadership with lengthy lists of leader qualities, the Army's understanding of adaptive leadership does not stray far from its definition of adaptability, a leader's reaction to change. As such, the qualities that define adaptability encompass the Army's view of adaptive leadership, as opposed to qualities that describe versatility and other complex human behaviors. In general attempts to focus learning should be cautious of approaches that produce long lists of educational and training requirements, approaches that could prove to be less than ideal for the development of junior officer adaptability, especially during pre-commissioning.

Just as Wong and others cautioned against the problems associated with long lists of attributes, competencies, and behaviors, Dr. George Reed and colleagues extended a similar note of caution against the attractiveness of competency-based approaches to leader development. Reed and his co-authors argued that this approach derived its attractiveness from the underlying assumption that simplifying, cataloguing, or controlling abstract professional qualities facilitated the military's ability to train and replicate desired abstract qualities in its leaders.¹³⁶ This, Reed and his associates contend, was a questionable process. Reed stated that competency-based approaches had "weak predictive value" for success and encouraged "normative stratification

¹³⁴ Haynes, "Transforming Junior Leader Development," 68-76. While the author recognized that long lists of attributes, competencies and behaviors were "a problematic and an untenable mechanism to assess a leader's abilities," the author nonetheless expanded the Army's short list of core leader competencies (leads, develops and achieves) that could encompass the range of pentathlete competencies identified in various studies on adaptive and pentathlete leadership to include , 64.

¹³⁵ Department of the Army, *Field Manual No. 6-22*, 10-8 to 10-9.

¹³⁶ Reed, "Mapping the Route of Leadership Education," 52, 50. Reed defined competency mapping as "a formal, top-down effort to identify, list, label, track, and measure competency descriptors. The competencies might be called knowledge areas, skills, attributes, attitudes, components, tasks, traits, or simply competencies. Once identified, numbered, and listed, they are usually broken down into sub-components, which are also numbered, so they might be associated with the broader competency area of cluster of competencies," 48-49.

between levels of professional military education rather than the desired integration.”¹³⁷ In other words, competency mapping encouraged distinction between those competencies, skills, and knowledge areas acceptable for learning at higher levels and those acceptable at lower levels within the military. Reed and his colleagues argued instead for learning approaches that centered on problem solving and improving social judgment and knowledge.¹³⁸ Recent studies recognized the traps associated with long lists of attributes, competencies, and behaviors and developed more parsimonious descriptions of adaptability.

Based upon Reed’s article, it could be argued that viewing adaptive leadership in broad terms, encompassing a wide range of attributes and competencies is counterproductive to junior officer development. A narrower, more holistic understanding of adaptability and adaptive leadership may prove more effective in the development of learning approaches given the limited time available to produce adaptive junior officers. The 2005 ARI and IDA studies, as well as the Army’s leadership doctrine provided a more parsimonious view of adaptability by categorizing the qualities used to describe adaptive behaviors. As previously discussed, the 2005 Mueller-Hanson ARI Study identified adaptability as a multi-dimensional behavior composed of three overarching types of adaptability: mental, interpersonal and physical. Similarly, the IDA Study identified cognitive and interpersonal aspects of adaptability, but it did not identify a separate physical component to adaptability.¹³⁹ Interestingly, physical adaptability, defined in terms of

¹³⁷ Reed, “Mapping the Route of Leadership Education,” 51.

¹³⁸ Ibid., 53-54. The authors also suggested that learning approaches that capitalized on ambiguity and incorporated tolerable levels of variation in learned skills and attributes was more effective in the development of desired leaders.

¹³⁹ Tillson, *Learning to Adapt to Asymmetric Threats*, S-2.

individual responses to weather conditions, physically strenuous or demanding activities, and changing job-related strength requirements was not fully explored by either study.¹⁴⁰

The Mueller-Hanson Study defined mental adaptability as individual thought responses to new situations or obstacles and one's ability to overcome challenges or improve effectiveness. This included responses to emergency or crisis situations, changes in work situations, learning new skills, and creative problem solving. The study further defined mental adaptability in terms of general cognitive, problem solving, decision making, and meta-cognitive abilities.¹⁴¹ The IDA Study identified similar cognitive components to adaptability. This study argued that higher cognitive functions consisted of intuition and critical and creative thinking skills. The study defined intuition, "as 'the way we translate our experience into action. . . Because our experience enables us to recognize what we do, we can therefore make decisions rapidly and without conscious awareness or effort. We don't have to deliberately think through issues in order to arrive at good decisions.'"¹⁴² The IDA study also noted that while concerns existed regarding the fallibility of intuition and intuitive decision making owing to a leader's lack of experience, the military had not taken steps to develop intuitive decision making skills within commanders. This was identified as the case despite the Army's acknowledgement that most leaders frequently used intuitive decision making in lieu of analytical decision making processes.¹⁴³ The IDA Study also recognized that while leaders used intuition frequently, there were times when critical and creative thinking were preferred or required. The study argued that these more analytical forms of thought were crucial to the success of the Army and prevented the application of 'cookie-cutter'

¹⁴⁰ Mueller-Hanson, *Training Adaptable Leaders*, 2-8. The Pulakos Study provided the underlying dimensions used to develop the three overarching types of adaptability in the Mueller-Hanson Study. The six dimensions of adaptive performance identified by Pulakos are cited in an earlier footnote, number 103.

¹⁴¹ Ibid., 5-6.

¹⁴² Tillson, *Learning to Adapt to Asymmetric Threats*, 44.

¹⁴³ Ibid., 45-46; *Field Manual No. 6-0* (2003), 2-5. Doctrine also recognizes the predominate use of intuition by Army leaders, stating "the majority of tactical decisions during execution – made in fluid, changing conditions of war, when time is short and information is lacking or doubtful – will be intuitive,".

solutions when approaching new problems.¹⁴⁴ The IDA Study argued that critical and creative thinking were aspects of a good thinking process, and provided the following relationship between them,

Creative thinking is involved with the creation or generation of ideas, processes, experiences, or objects; critical thinking is concerned with their evaluation. Creative thinking involves creating something new or original. It involves the skills of flexibility, originality, fluency, elaboration, brainstorming, modification, imagery, and associative thinking. Critical and creative thinking are interrelated and complementary aspects of thinking. Almost all of the thinking that we undertake contains some critical and some creative aspects.¹⁴⁵

Citing a study by Daniel Kahneman, the IDA Study argued that the mind's two cognitive processes, intuitive (automatic) and critical thinking (controlled), were interdependent thinking processes and concluded that it was in the military's best interest to develop each.¹⁴⁶

The relational skills function, the IDA Study's one counterpart to the cognitive skills function, consisted of self awareness and social skills. This study described a leader's self awareness in terms of one's own self consciousness and one's consciousness relative to others. The study stated that self-aware leaders were better able to recognize personal strengths, weaknesses, and how personal feelings affected not only themselves, but teams as well. Conversely, the IDA Study stated that leaders that lacked self awareness were unable to adjust to changing circumstances owing to self perceptions of powerlessness or a lack of personal control over the environment or circumstances.¹⁴⁷ The final component of the IDA Study's components of relational adaptability was social skill. The study defined social skills as those skills needed for

¹⁴⁴ Tillson, *Learning to Adapt to Asymmetric Threats*, 47.

¹⁴⁵ Ibid., 48.

¹⁴⁶ Ibid., 49. Citing Latour and Hosmer, the study also defined self-awareness in terms of self-awareness, managing emotions, and motivating oneself, 52.

¹⁴⁷ Ibid., 50-51.

individuals to effectively operate as a team.¹⁴⁸ Similarly, the Mueller-Hanson Study's description of interpersonal adaptability focused on individual changes in actions and communication to improve relationships, to include intercultural interactions. This study also subdivided interpersonal adaptability into two parts, one's communication skills and self and other awareness.¹⁴⁹

Like both the ARI and IDA Studies, Army leadership doctrine characterizes adaptability as multi-dimensional. The Army however, only identifies two components parts and does not provide a simple, overarching theme to either component. Leadership doctrine describes the first component of adaptability as "the ability of a leader to identify the essential elements critical for performance in each new situation." Doctrine describes the second component as "the ability of a leader to change his practices or his unit by quickly capitalizing on strengths and minimizing weaknesses."¹⁵⁰ Although the Army's identified components are less clear than those either the ARI or IDA studies provide, the Army's components of adaptability suggest that the Army also recognizes cognitive, interpersonal, and physical (action-oriented) elements to adaptability. While the specific naming or grouping of the components may have differed between each of the studies, the surveyed works consistently identified adaptability as a multi-dimensional behavior and grouped various supporting attributes or competencies under two or three overarching categories. Figure 3 below captures a hybrid representation of the Mueller-Hanson and IDA Study's components of adaptability.

¹⁴⁸ Tillson, *Learning to Adapt to Asymmetric Threats*, 51. This interpersonal skill was argued to further consist of the following skills: empathy, service orientation, organizational awareness, and relation management qualities (influence, conflict management, etc.), 52-53.

¹⁴⁹ Mueller-Hanson, *Training Adaptable Leaders*, 6.

¹⁵⁰ Department of the Army, *FM No. 6-22*, 10-9.

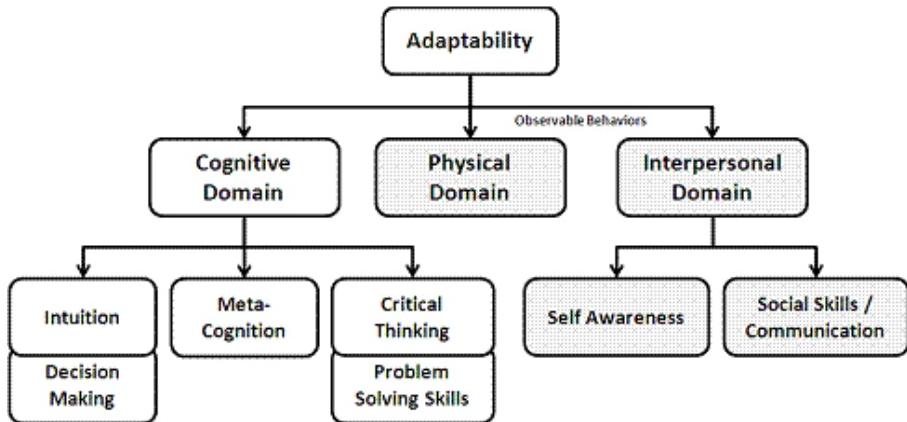


Figure 3. Hybrid Model of Domains of Adaptability
 (Adapted from Mueller-Hanson et al., 2005, and Tillson et al., 2005)¹⁵¹

In the works surveyed, the authors and researchers identify adaptability as a complex, multi-dimensional leader behavior consisting of multiple component parts. The simplification of adaptability to just a few component parts seemed to support the Army's ability to focus leader development methods at the pre-commissioning level, however, Reed's warning concerning competency-based approaches included the use of groupings, categories, and the like.¹⁵² Reed did however, suggest learning approaches that focused on the development of cognitive and social interactions, which paralleled the findings of both the ARI and IDA studies. While each of the studies described adaptation primarily in terms of the unobserved cognitive processes that preceded or coincided with observed interpersonal or physical adaptability, neither study defined the underlying processes that resulted in the outward manifestation of adaptive leader behaviors.¹⁵³ Instead, the studies merely differentiated between the deliberate and intuitive decision making processes, or attempted to place cognitive adaptability along a spectrum of time,

¹⁵¹ Mueller-Hanson, *Training Adaptable Leaders*, 2-3; Tillson, *Learning to Adapt to Asymmetric Threats*, 39-41.

¹⁵² Reed's description of competency mapping is included in footnote number 136.

¹⁵³ Mueller-Hanson, *Training Adaptable Leaders*, 2-3; Tillson, *Learning to Adapt to Asymmetric Threats*, 39-41.

between shorter (intuitive) periods of thought and longer (deliberate or analytic) periods of thought.¹⁵⁴ Interestingly, a holistic view of adaptability and an understanding of its underlying cognitive processes provide a better understanding of adaptive behavior and a better means for focusing learning approaches to develop adaptability in junior leaders.

The Vandergriff study, unlike the ARI or IDA studies, associated a specific thinking process with adaptive leadership. According to Vandergriff, adaptive leaders understood the importance of time and instinctive responses and therefore utilized rapid or intuitive decision making processes like that outlined by John Boyd's Theory of Decision Making, more commonly referred to as the 'OODA loop.'¹⁵⁵ In *Raising the Bar*, Vandergriff stated that "adaptive leaders understand and use the 'OODA loop,' which stands for 'observation-orientation-decision-action.'"¹⁵⁶ Commonly understood as a simple decision making process for "getting inside the enemy's decision cycle," Vandergriff emphasized that the 'OODA loop' was not a process, but a guide for adaptive leaders.¹⁵⁷ Instead, Vandergriff believed that to produce effective decision

¹⁵⁴ Mueller-Hanson, *Training Adaptable Leaders*, 5-6. Naturalistic decision making is a term used by Dr. Gary Klein to describe intuitive decision making; Tillson, *Learning to Adapt to Asymmetric Threats*, 5. To establish a time frame within which adaptability exists, the IDA study contrasted the concepts of adaptability and agility. IDA identified adaptability as a slower cognitive process than agility. Citing a 1997 Army definition, the IDA study stated that agility was 'the ability of friendly forces to act faster than the enemy,' and was therefore too narrow to address responses to factors associated with asymmetric threats.

¹⁵⁵ Vandergriff, *Raising the Bar*, Boyd described his theory of decision making thusly, "Conflict can be seen as time-competitive observation-orientated-decision-action cycles. Each party to a conflict begins by observing. He observes himself, his physical surroundings and his enemy. On the basis of his observation, he orients, that is to say, he makes a mental image or 'snapshot' of the situation. On the basis of this orientation, he makes a decision. He puts the decision into effect, i.e., he acts. Then because he assumes his action has changed the situation, he observes again, and starts the process anew. . . With each action, the slower party's action is inappropriate by a larger time margin. Even though he desperately strives to do something that will work, each action is less useful than its predecessor; he falls farther and farther behind. Ultimately, he ceases to be effective." Robert B. Polk, "A Critique of the Boyd Theory – Is It Relevant to the Army?" (School of Advanced Military Studies monograph, Command and General Staff College, 1999), 6-7.

¹⁵⁶ Ibid., 46.

¹⁵⁷ Ibid., 47-48.

makers, the act of decision making must be emphasized, not the underlying process.¹⁵⁸ While the processes themselves were not the emphasis of learning in the classroom, they provided, as Vandergriff pointed out, a useful guide to understanding how leaders thought and how leaders learned. For the purposes of this monograph, the identification of adaptability's underlying cognitive processes provided insight to a general process for adaptability and a means to better focus methods of instruction to develop adaptive officers. While Vandergriff associated intuitive decision making with adaptive leadership, Army doctrine and other leader development studies also addressed decision making and the other underlying cognitive processes identified by ARI and IDA studies as essential to adaptive leadership.

Army *Field Manual No. 6-0* for example, addresses both intuitive and analytical decision making in its manual on mission command.¹⁵⁹ Doctrine describes the analytic decision making as a time-consuming, critical thinking process for selecting favorable courses of action that lead to mission success. Further, doctrine states that analytic decision making involves the commander and staff's use of a formally defined process, the Military Decision Making Process, to develop, analyze, and compare alternative courses of action that support selection of an optimal solution for execution.¹⁶⁰ Of note, Vandergriff and others argued that the Army's analytical decision making process did not define the cognitive processes associated with adaptability.¹⁶¹ Doctrine identifies the intuitive decision making process, on the other hand, as a faster leader driven process that relies heavily upon the leader's assessment of environmental context. Intuitive decision making also seeks satisfactory solutions without using deliberate comparisons of various

¹⁵⁸ Vandergriff, *Raising the Bar*, 47-48; Robert B. Polk, "A Critique of the Boyd Theory," 44. Dr. Gary Klein, cited in Polk's work, agreed with Vandergriff's assessment that understanding the process was important, but also stated that the process should not be the focus of learning.

¹⁵⁹ Department of the Army, *FM No. 6-0*, 2-3.

¹⁶⁰ Ibid., 2-4.

¹⁶¹ Vandergriff, *Raising the Bar*, 45-46; Tillson, *Learning to Adapt to Asymmetric Threats*, 15.

alternatives.¹⁶² While doctrine describes intuitive and analytical decision making, its treatment of both does not provide an adequate basis for understanding a leader's underlying adaptive cognitive processes.

In *Gut Feel: Developing Intuition in Army Junior Officers*, Col. Todd McCaffrey studied two decision making models, Dr. Robin Hogarth's framework describing intuition and Dr. Klein's Recognition-Primed Decision Model. According to McCaffrey, both the Hogarth and Klein decision making models provided insight to understanding the underlying cognitive processes that defined a leader's decision making. McCaffrey argued that understanding one's own cognitive processes fostered greater self-awareness in junior leaders. Moreover, a leader's understanding of intuitive thought processes supported the development of learning programs designed to develop junior leader intuition and judgment.¹⁶³ In *Educating Intuition*, Hogarth argued, like the IDA Study, that the mind consisted of two distinct cognitive systems. The first system, the tacit system was nearly automatic and operated at the "preconscious or subconscious" level. The second system, the conscious or deliberate system operated at the conscious level.¹⁶⁴ Hogarth also described these cognitive processes as integrated, one being inseparable from the other.¹⁶⁵ The primary difference between the two systems, according to Hogarth, was that while the tacit system consumed little conscious attention, the deliberate system required one's active attention.¹⁶⁶ McCaffrey stated that the tacit system, which operated "on the basis of tacit knowledge, [was] contextually sensitive, and provide[d] rapid approximate responses, typically

¹⁶² Department of the Army, *FM No. 6-0*, 2-3. Army doctrine defines intuitive decision making as "the act of reaching a conclusion which emphasizes pattern recognition based on knowledge, judgment, experience, education, intelligence, boldness, perception, and character. This approach focuses on assessment of the situation vice comparison of multiple options."

¹⁶³ McCaffrey, "Gut Feel," 5-6.

¹⁶⁴ Hogarth, *Educating Intuition*, 194-195.

¹⁶⁵ Ibid., 194.

¹⁶⁶ Ibid., 194.

without conscious awareness.”¹⁶⁷ As such, Hogarth argued the tacit system was associated with intuition, which McCaffrey called the mind’s default cognitive process.¹⁶⁸ The deliberate system, on the other hand, was the mind’s governing cognitive process and was associated with analytical or critical and creative thinking.¹⁶⁹ Moreover, Hogarth assumed that one’s conscious attention was a finite resource to be used sparingly. Hogarth therefore believed that intuition provided a mechanism whereby scarce conscious attention could be saved for processes that required more analysis or a decision.¹⁷⁰ Recognizing the inherent speed of intuitive decision making, McCaffrey also understood the value in developing a leader’s judgment and ability to recognize when to use deliberate thought, even in tactical settings. As such, McCaffrey argued the importance of targeting intuitive decision making as a developmental objective.¹⁷¹ Hogarth provided a framework for understanding the manner in which the tacit system, intuition, interacted with the mind’s other complex system of thought, the deliberate system. Hogarth’s framework is shown in appendix 1 below.

A second decision making model explored by Col. McCaffrey was Dr. Klein’s Recognition-Primed Decision (RPD) Model.¹⁷² Like the Hogarth model, McCaffrey identified the RPD Model as valuable in focusing learning interventions that prepared junior leaders for today’s complex operational environment. Unlike previous studies, Klein’s study analyzed decision making in the field. Based upon observations of leaders in naturalistic settings, Klein’s RPD

¹⁶⁷ McCaffrey, “Gut Feel,” 5.

¹⁶⁸ Hogarth, *Educating Intuition*, 200, 14. Hogarth defined intuition as understanding or actions that “are reached with little apparent effort, and typically without conscious awareness. They involve little or no conscious deliberation.”

¹⁶⁹ McCaffrey, “Gut Feel,” 5.

¹⁷⁰ Hogarth, *Educating Intuition*, 200.

¹⁷¹ McCaffrey, “Gut Feel,” 9.

¹⁷² Athens, “Unraveling the Mystery of Battlefield Coup d’oeil,” 18-21. The Recognition-Primed Decision Model was also studied by Athens’ monograph.

Model explained how experienced leaders made decisions under naturalistic conditions.¹⁷³ Klein's study argued that Naturalistic Decision Making (NDM) was "the way people actually make decisions," especially when circumstances were not suited for 'rational choice' or analytical decision making strategies that involved a comparison of various options.¹⁷⁴ Based upon his findings, Klein's argument identified the cognitive process of recognition as essential to decision making by experienced leaders. McCaffrey described recognition as the "cognitive ability to tie current cues to past experiences."¹⁷⁵ According to Klein, NDM was more effectively used by experienced leaders under the stress of limited time and information, changing environmental conditions, and uncertainty owing to the range of an experienced leaders tacit knowledge.¹⁷⁶ Countering the argument that rational choice methods better served inexperienced officers, Klein also noted that inexperienced decision makers were just as likely to make errors in applying rational choice strategies as with NDM. As such, Klein argued that through the study of experienced leader decision making, "decision requirements" could be identified and used to target learning interventions to develop intuitive decision making abilities in others.¹⁷⁷ Like Hogarth's intuitive response framework, Klein's RPD Model identified a framework describing the interaction of the intuitive and analytical cognitive processes; however, Klein's RPD Model provided greater detail of intuition's underlying processes. Klein's model described the role that recognition and experience played in naturalistic decision making, intuition's interaction with

¹⁷³ Klein, *Making Decisions in Natural Environments*, 9.

¹⁷⁴ Ibid., 2, 9.

¹⁷⁵ McCaffrey, "Gut Feel," 6-7. Recognition consists of four by-products: relevant cues, expectancies, plausible goals, and recognition of typical actions. McCaffrey also provided a good summary of the recognition process, "Since recognition is rarely a one-to-one pattern mapping of a current situation to a recognized experience based course of action, decision makers use situational cues to elicit tacit memories or previous experiences. Based on these experiential cues, the decision maker generates mental expectations of the elements typical to the situation. Those cues provide comparison points to ensure that the expected typical activities and interactions unfold as expected leading toward an acceptable decision course of action."

¹⁷⁶ Klein, *Making Decisions in Natural Environments*, 1.

¹⁷⁷ Ibid., 17.

analytical thought processes, and the mental process associated with course of action development and mental simulation. Klein's RPD Model is shown in appendix 2 below.

Like intuitive decision making processes, the ARI and IDA studies also defined critical and creative thinking processes as essential to leader adaptability. Moreover, just as studies of intuition identified models that described intuition's underlying processes, studies of critical thinking also identified models to facilitate understanding of its underlying cognitive process and to support the design of educational methods to promote critical thinking in leaders. In an ARI Study of critical thinking, Sharon Fischer and her colleagues provided the following definition of critical thinking,

*Critical thinking is a time-limited mode of controlled, deliberate, processing that is purposeful, stimulus-driven, and context-bound. Integral to [critical thinking] are checks on the process and products of thinking, which make it a fundamentally meta-cognitive process. Its function is to serve other cognitive tasks such as decision making and problem solving [emphasis is original].*¹⁷⁸

Based upon an analysis of other critical thinking models, the Fischer Study proposed a unique model of critical thinking that assumed critical thought is a highly stimulus-bound process.¹⁷⁹ As a result, the study recognized critical thinking as a process driven by contextual conditions and a requirement to complete an identified meta-task. The study described contextual conditions as stimuli that required logical reasoning or analysis as the result of inconsistencies, gaps or changes in information. The study also provided the caveat that deliberate thought processes required the presence of sufficient time to think. As noted, the study also stated that to engage leaders in critical thought one of four meta-tasks had to exist: the requirement to understand, make a

¹⁷⁸ Susan C. Fischer, V. Alan Spiker, and Sharon L. Riedel, *Research Report 1881: Critical Thinking Training for Army Officers, Volume One: Overview of Research Program* (Arlington, VA: U.S. Army Research Institute for Behavioral and Social Sciences, 2008), 4.

¹⁷⁹ Susan C. Fischer, V. Alan Spiker, and Sharon L. Riedel, *Research Report 1882: Critical Thinking Training for Army Officers, Volume Two: A Model of Critical Thinking*, (Arlington, VA: U.S. Army Research Institute for Behavioral and Social Sciences, 2009), 24.

judgment, make a decision, or solve a complex problem.¹⁸⁰ The study also identified several predisposing or moderating factors that affected critical thinking. Predisposing factors for example, described the likelihood that a leader would initiate critical thinking, while moderating variables indicated how, or how well, a leader conducted critical thought.¹⁸¹ Contrary to traditional views of the deliberate thinking process, the Fischer Study also argued that critical thinking occurred over short periods of time (5-30 minutes) and suggested that longer periods of critical thought were in fact a series of critical thinking events strung together by a meta-cognitive monitoring process.¹⁸²

The Fischer Study's critical thinking model, like intuitive decision making models, consisted of two interactive cognitive processes or systems. Figure 4 below depicts the Fischer Study's critical thinking model.

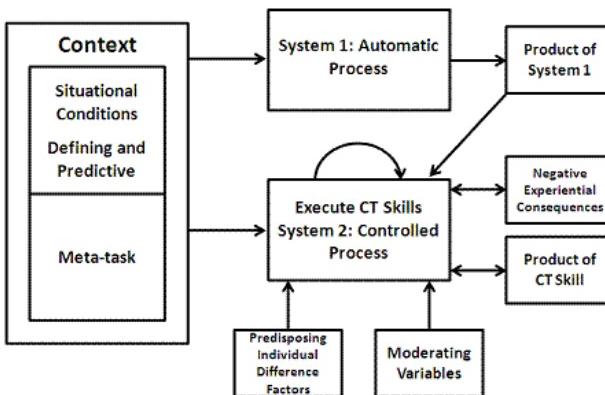


Figure 4. Process Model for Critical Thinking
(Adapted from Fischer, Spiker, and Riedel, *Critical Thinking Training For Army Officers*, 2009)¹⁸³

¹⁸⁰ Fischer, Spiker, and Riedel, *Research Report 1882*, 25-26.

¹⁸¹ Ibid., 27, 30.

¹⁸² Fischer, Spiker, and Riedel, *Research Report 1881*, 4.

¹⁸³ Fischer, Spiker, and Riedel, *Research Report 1882*, 26.

The first of these systems was automatic and the second deliberate. The Fischer Study characterized the automatic system (System 1) as a rapid, relatively effortless thought process. The deliberate system (System 2), on the other hand, was a “slow, controlled, serial processing that [was] effortful, rule-governed yet flexible in its application.”¹⁸⁴ The Fischer Study, like the studies on intuition, described the two cognitive systems as interactive and parallel in the actions they performed. The Fischer Study also indicated that while the automatic process was continuous and unstoppable, it was regulated by the deliberate process. Fischer and colleagues also argued that the automatic system did not handle recursive meta-cognition and typically derived only one solution to a problem. As a result, the study stated that the automatic system was prone to ‘jump to conclusions.’ This was especially true if the decision maker faced novel or complex situations that required innovative solutions.¹⁸⁵ The deliberate system, on the other hand, was designed to conduct examinations in detail, performed logical reasoning, and manipulated large numbers of variables well.¹⁸⁶ Interestingly, the study noted that “how well the two systems interact[ed] probably contribute[d] as much, or more, to the quality of observable and measurable performance... as the effectiveness of each system alone.”¹⁸⁷ In terms of leader development, the study found that higher levels of experience, which the study equated to education, related positively to observations of higher levels of critical thought.¹⁸⁸ Lastly, the study recommended that to develop critical thinking skills required educational programs to highlight inconsistencies in course content and sensitize students to inconsistent material during coursework.¹⁸⁹

¹⁸⁴ Fischer, Spiker, and Riedel, *Research Report 1882*, 27.

¹⁸⁵ Ibid., 28.

¹⁸⁶ Ibid., 28-29.

¹⁸⁷ Ibid., 30.

¹⁸⁸ Ibid., 50-51.

¹⁸⁹ Ibid., 68.

Studies, doctrine, and academic literature defined adaptability and adaptive leadership in similar ways. Studies that viewed adaptability in a relatively narrow sense centered on an individuals' ability to lead or direct personal or organizational change. Army writers generally displayed a tendency to use adaptability and adaptive leadership as 'catch-all' phrases that described the ideal Army leader. Looking strictly in terms of definitions, studies and Army doctrine provided no definition for adaptive leadership, although recent doctrine defines pentathlete leadership, which some writers used interchangeably with adaptive leadership.¹⁹⁰ The phrase pentathlete leader, however, suggested a greater range of leader qualities than did adaptive leadership. While the pentathlete leader described an adaptive and innovative leader, it also encompassed the leader who was multi-skilled, versatile, and more experienced. It seemed that a pentathlete better described the type of adaptive leadership developed over longer periods of service and adaptability across a greater range of duties and levels of responsibility. None the less, studies indicated that an adaptive leader was someone who was self-aware, capable of operating in complex and uncertain environments, and capable of changing to environmental requirements within the context of prescribed Army values, ethics, and commander's intent.

Army leadership doctrine and studies consistently confined the scope of adaptability and adaptive leadership to a narrow range of abilities and observed behaviors. Moreover, these two sources consistently categorized adaptability to several component parts that encompassed or explained observable adaptive leader behaviors. While the number of categories varied from one study to another, three overarching component parts describing observable and unobservable adaptive leader behaviors emerged: mental, physical, and interpersonal adaptability. The first component, mental adaptability, described a leader's unobservable personal ability to adapt. The later components described a leader's observable ability to adapt. Unfortunately, narrowing

¹⁹⁰ Pentathlete leadership is defined by Army *Regulation No. 600-100* and is cited in an earlier footnote, number 127.

adaptability in scope and categorizing its parts provided no better guarantee than merely generating long lists of descriptive traits in the design of meaningful learning approaches to effective leader development.

While describing, defining, and categorizing adaptive leadership has been used to identify trainable qualities, competency-based approaches, as Reed argued, provided no guarantee for the successful development of abstract qualities in leaders such as adaptability. Competency-based approaches also lent themselves to the design of training and education programs that piecemealed leader development. A better approach to developing complex, adaptive human behaviors seemed to stem from a holistic appreciation for adaptability and a balanced application of training, education, and experience during learning interventions as described by Vandergriff. The ARI and IDA studies identified the underlying cognitive processes associated with adaptive behavior; however, neither described an overall process for adaptability that included both its observable and unobservable elements. Integrating various observable and unobservable behaviors from the studies surveyed by this monograph, a process describing adaptive leader behavior could include the following “steps”:

- **Learning:** acquisition and comprehension of knowledge; basis of tacit knowledge.¹⁹¹
- **Application:** rote application of learned skills (physical or cognitive); performance as learned or previously experienced.¹⁹²

¹⁹¹ *The Merriam-Webster Dictionary*, 5th ed., s.v. “Learning.” Merriam-Webster defines learning thusly, “to gain knowledge, understanding, or skill by study or experience.”

¹⁹² Benjamin S. Bloom, ed., *Taxonomy of Educational Objectives: Book 1, Cognitive Domain*, (New York: Longman, 1956), 120-123. Bloom described the desirable state for the application level as adaptive. Effective application represented a student’s ability to apply learned skills in situations dissimilar to those in which skills were learned. This author defines application as rote to illustrate the requirement for analytical thinking and decision making in a model that describes a leader’s reaction to change.

- **Recognition:** awareness of change, complexity, or ambiguity; surprise is another term that describes awareness of unexpected outcomes in otherwise familiar actions.¹⁹³
- **Reflection:** analytical and synthetic cognitive processes described by critical and creative thinking or problem solving designed to identify suitable courses of action or understanding following recognition; reflection also includes mental simulation.¹⁹⁴
- **Selection:** involves the selection of suitable and effective course of action or understanding; suitability and effectiveness are judged against Army values, ethics, and adherence to commander's intent; decision making.¹⁹⁵
- **Communication:** communication of a selected course of action to one's unit or peers; communication encompasses the description and directing of action or change.
- **Leading:** leading or influencing others along a chosen course of action relevant to environmental and operational context.¹⁹⁶
- **Assessing:** involves the assessment of actions performed or ongoing; assessment and evaluation include self-reflection and meta-cognitive processes that inform intuition, judgment, and tacit knowledge for future experiences.¹⁹⁷

¹⁹³ Donald A. Schön, *Educating the Reflective Practitioner: Toward a New Design for Teaching and Learning Professions* (San Francisco, CA: Jossey-Bass, 1987), 26.

¹⁹⁴ Ibid., 26-29. Schön described the process of thinking while doing as “reflection-in-action.”

¹⁹⁵ This author uses the term selection to differentiate the leader's mental selection of a course of action or option from the overall process of decision making.

¹⁹⁶ FM No. 3-0, 5-8 to 5-12. The terminology for these two steps is borrowed from the Army's battle command process; the steps that most closely reflect a leader's interpersonal adaptability requirements are describe, direct and lead. This author uses the term communicate and lead to include a leader's interpersonal interaction with units led in combat.

¹⁹⁷ Ibid., 5-16 to 5-17; Bloom, *Taxonomy of Educational Objectives*, 185-191. The terminology for this step is borrowed from the Army's battle command process. Bloom uses the word evaluate for the same process; Vandergriff, *Raising the Bar*, 37, 84; McCaffrey, “Gut Feel,” 12-15. Vandergriff, McCaffrey, Klein, and others emphasized the importance of feedback, assessments, or after-action-reviews to the development of adaptive leaders.

The elaboration of a process for adaptability seems to provide a clear linkage between the cognitive, interpersonal, and physical functions associated with adaptive behavior. Figure 5 below illustrates the above described process for adaptability.

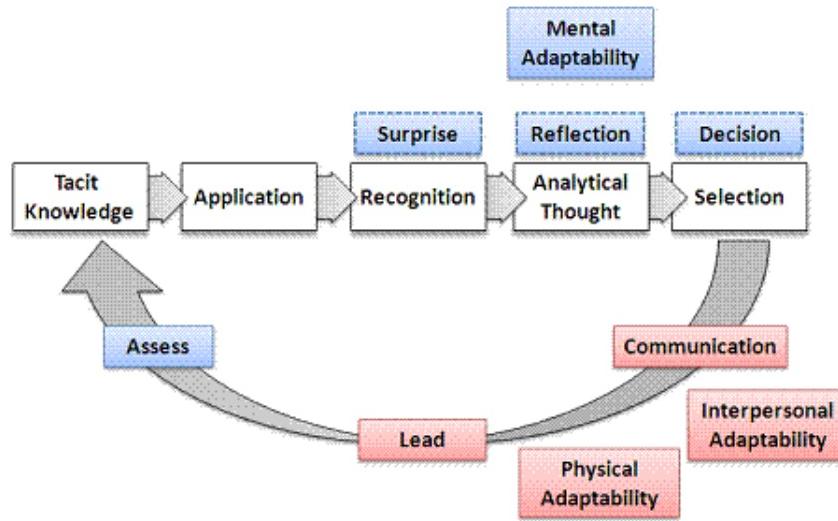


Figure 5. Process Describing Adaptive Leader Behavior

Because the interpersonal and physical components of adaptability are outward manifestations of the cognitive component of adaptability, a focus on the development of cognitive adaptability would benefit the development of adaptive junior officers. Given Mueller-Hanson's assessment that cognitive abilities were less trainable than domain specific knowledge or interpersonal skills necessitates that meaningful learning interventions begin early in an officer's career, ideally during pre-commissioning.¹⁹⁸

In order to develop adaptive leadership, leader development strategies must also promote meaningful learning and methods that achieve a good balance between the three pillars of leader development, especially at the junior officer level. As the ATLDP and the Army's recent leader development strategy noted, the Army's past leader development strategies have unfortunately

¹⁹⁸ Mueller-Hanson, *Training Adaptable Leaders*, 7-8; Vandergriff, *Raising the Bar*, 47, 83.

fallen short.¹⁹⁹ Rote learning and memorization, necessary components for leader development, provide leaders with foundational knowledge and basic comprehension that support the basic application of cognitive and physical skills. Rote learning and the application of checklist driven skills alone, however, are of little value to officers leading and directing Soldiers in complex environments against a thinking enemy. If adaptive leadership is the desired outcome of the officer leader development system, then learning must be meaningful. Unlike rote learning, meaningful learning requires the interaction of education, training, and experience. Education provides the leader with foundational knowledge. Classroom or laboratory experiences provide opportunities to apply skills, exercise intuitive and analytical cognitive processes, and assess outcomes. Field training provides the opportunity for further practice and a means to validate learning. During a meaningful learning process, application is not checklist-driven or robot-like, it is adaptive or innovative. Likewise, application in meaningful learning approaches is characterized by the requirement to assess context and essential environmental cues, and to synthesize cues with relevant skills to produce contextually relevant responses.²⁰⁰ Lastly, meaningful learning is necessarily followed by the leader's evaluation of one's own actions and decision making to inform judgment and intuition that supports future decision making experiences.

¹⁹⁹ Department of the Army, *The Army Training and Leader Development Panel Officer Study Report to the Army*, OS-7, OS-11; Department of the Army, *A Leader Development Strategy for a 21st Century Army*, 2. The ATLDP argued that the Army's officer education system was not meeting expectations was unable to remain relevant, while the Army's recent leader development strategy declares as previously noted that the Army is out of balance.

²⁰⁰ McCaffrey, "Gut Feel," 8, 12-13.

Thinking is an active process. . . . To produce good military adaptive thinkers one must train a performance – a thinking performance – in much the same way that one trains any skilled, well-rehearsed, and extensively practiced behavior to enable expert performance.

- Army Research Institute²⁰¹

Developing Adaptive Leaders

The development of adaptive leadership must account for the complexity of the desired behavior. Adaptability is a multifaceted and complex human behavior describing not only one's observed ability to adjust interpersonal and physical behaviors to environmental change, but one's unobserved ability to recognize, mentally process, and respond to that change (mental adaptability). Leader development strategies must therefore incorporate all three pillars of the leader development model (education, training, and experience) to develop adaptability in junior officers. Several studies, including the ATLD Study, indicated that the Army's approach to leader development was not effectively producing adaptive leaders. This was due in part to the Army's tendency to use what Vandergriff identified as industrialized approaches to leader development, approaches that utilized lecture style presentation, memorization, and rote learning methods to impart upon students basic information.²⁰² While these methodologies proved successful in preparing Army leaders for combat on linear, contiguous battlefields against known threats its effectiveness in developing adaptive junior officers for today's complex operational environment and future threats is questionable at best.²⁰³

While rote forms of learning are valuable for providing basic knowledge and imparting a basic level of comprehension to students they do not guarantee students achieve higher levels of thought.²⁰⁴ Moreover, rote learning does not integrate all three pillars of leader development

²⁰¹ Tillson, *Learning to Adapt to Asymmetric Threats*, 25. The IDA Study cited an earlier ARI Newsletter as the source for this quote.

²⁰² Vandergriff, *Raising the Bar*, 12, 31.

²⁰³ Ibid., 83, 109.

²⁰⁴ Reed, "Mapping the Route of Leadership Education," 51.

leaving the learning experience flat, forgetful, and thus less meaningful to the development of adaptive leaders. During pre-commissioning, when military instructors must compete with civilian undergraduate course work for a cadet's time and military curriculum requires training of a large numbers of tasks and practical military skills, the default method of instruction is often mere presentation of information to cadets.²⁰⁵ This method of instruction is least likely to develop adaptive leadership in young cadets and junior officers. Unfortunately, the Army's historical tendency has been to use rote learning and training methods during pre-commissioning where it prepares young officers who lead Soldiers on the front lines of complex, ambiguous, and uncertain modern battlefields.

There is nothing inherently rote about learning derived from training, and for military purposes there is nothing inherently meaningful about learning that is obtained through education. While the Army and its leaders historically define education and training in dichotomous terms, this approach is counterproductive to the development of effective learning interventions at the lowest levels of leader development. The Army's recent leader development strategy recognizes the importance of moving away from dichotomous views of education and training.²⁰⁶ Moreover, it recognizes an imperative for the Army to move toward an understanding that education, training, and experience are complementary and interactive components of effective, meaningful approaches to learning and leader development.²⁰⁷

Understanding adaptive behavior as a complex, integrated, and holistic process, one that involves both cognitive and observed physical and interpersonal behaviors provides a focus for effective learning interventions. Further, the understanding of the underlying cognitive processes

²⁰⁵ Haynes, "Transforming Junior Leader Development," 114-116. Haynes' study provides a 2007 version of Cadet Command's *Basic Officer Leaders Course Common Core Task List*. An updated list is also available at the U.S. Army Accessions Command official Intranet site accessible through the Army Knowledge Online (AKO) directory (AKO/ U.S. Army Accessions Command/G3/BOLC).

²⁰⁶ Department of the Army, *A Leader Development Strategy for a 21st Century Army*, 2.

²⁰⁷ Ibid., 10.

that drive observed adaptive behaviors points to three areas to focus learning interventions. The first area of focus is the development of the leader's tacit knowledge. While essentially similar to current approaches involving instruction on history, operational case studies, military science, or topics related to the social sciences, meaningful learning requires active participation during presentation. Memorization of information should not be the sole focus of study or the desired outcome of instruction. While these topics provide a base of knowledge that supports understanding and application, meaningful learning ensures that presented information informs the leader's ability to recognize anomalies, change, and frame a leader's intuition as well. The second area of focus is the development of a leader's analytical decision making abilities. The development of analytical decision making increases by providing cadets with the opportunity to think critically and creatively, to solve complex or novel problems, and experience decision making. These experiences in turn develop a leader's intuition, judgment, and build confidence in personal decision making abilities. The final area to focus learning interventions is the effective assessment or evaluation a leader's adaptive processes. As previously indicated, the focus of assessments or evaluations (after-action reviews) must be a leader's thinking and decision making process. Effective after-action reviews not only require leaders understand their decision making processes, it develops meta-cognitive abilities and interpersonal interaction and communication. If the Army is to develop adaptive leaders, the approaches it uses to train and educate adaptive junior officers should address these three areas of intervention.²⁰⁸ Vandergriff's Adaptive Course Model and small group instruction provide two possible methods to achieve focus in these three areas through emphasis on experienced-based learning. Both methodologies, if applied at the

²⁰⁸ These three areas of focus stem from the author's evaluation of Vandergriff's Adaptive Course Model and emphasis in the ARI, IDA, and Klein studies on the development of cognitive processes associated with decision making.

junior officer level appear to be effective in the development of not only cognitive adaptability, but interpersonal and physical adaptability as well, even in campus settings.²⁰⁹

Donald Vandergriff designed the Adaptive Course Model (ACM) to outline a new approach and cultural perspective toward the development of adaptive Army leaders.²¹⁰ At the heart of Vandergriff's ACM is the belief that leader development must focus on creating adaptive leaders and that the process must begin early in an officer's career.²¹¹ Vandergriff outlines four major elements in the development of adaptive leaders. The first element of program designed to develop adaptive leaders is the ACM itself, which Vandergriff believes requires change in the Army's cultural perspective toward learning. The second element is the ACM program of instruction, third is a cadre of qualified instructors, and lastly an effective leader evaluation system.²¹²

Vandergriff describes the ACM as a no-cost adjustment to the Army's current institutional leader development programs. Like current methodologies, the ACM utilizes methods of instruction that focus primarily upon the actions of teachers, students, and the resources already present in pre-commissioning environments – primarily the classroom, imagination, and the willingness of both the students and teachers to support a positive learning environment.²¹³ Unlike current leader development processes, the ACM shifts the focus of leader training and education from tactical and technical procedures and processes to the development of adaptability and its underlying cognitive processes. Vandergriff recommends that the current leader development paradigm change by

²⁰⁹ Foster, "No 'Approved Solutions' in Asymmetric Warfare," 29. Maj. Foster's article provides positive feedback from cadets of their learning experience using the Adaptive Leader Model, which is synonymous with Vandergriff's Adaptive Course Model.

²¹⁰ Vandergriff, *Raising the Bar*, 79-80.

²¹¹ Ibid., 79, 83.

²¹² Ibid., 79.

²¹³ Ibid., 80.

. . . introducing cognitive development through the experiential learning process in the beginning of an aspiring leader’s professional development. The challenge is achieving a balance between cognitive development and task proficiency, but it can be done when they are viewed in concert and not as separate approaches to leader development. . . . Accomplishing this change will stand in contrast to established beliefs regarding ‘teaching the basics’ through rote memorization of the technical aspect of the profession known as ‘task-training.’ The new leader development paradigm starts with developing the leader – the hard part – first, and then the technician later, once the leader knows how to think.²¹⁴

The goal of Vandergriff’s ACM is to improve the leader’s ability to make quick and effective decisions and develop a leader’s ability to make sense of and identify opportunities in new situations. Additional goals include improving a leader’s comfort with changing situations while continuing to promote a leader’s ability to develop superior tactical and technical competence.²¹⁵ To achieve these objectives, the ACM requires a culture of learning that allows students to “experience the emotional trauma of failing with a safe, face-saving environment” and requires students to seek and “find answers for themselves and build intuition – a necessary trait of adaptive leaders.”²¹⁶

The ACM program of instruction also supports these objectives through four experience-based curricular pillars.²¹⁷ The first pillar is the case study learning method, the second is tactical decision games (TDGs), the third is free play force-on-force exercises, and the last is feedback through the leader evaluation system.²¹⁸ Each of these pillars centers on the use of practical scenarios, both tactical and non-tactical, which provide students numerous opportunities to participate in and learn from simulated decision making experiences. According to Vandergriff, exposure to different decision making experiences supports the development of intuition, decision

²¹⁴ Vandergriff, *Raising the Bar*, 83.

²¹⁵ Ibid., 85.

²¹⁶ Ibid., 81-82.

²¹⁷ Ibid., 84. Vandergriff identified Klein’s Recognition Primed Decision making Model as the basis for the Adaptive Course Model’s programs focus toward experiential learning.

²¹⁸ Ibid.

making, meta-cognition, communication skills, and builds character.²¹⁹ While Vandergriff also believes that scenarios must test cadet leadership abilities, the author also recognizes that the development of adaptability is evolutionary. As such scenarios must not present cadets with problems they are not capable of solving or managing.²²⁰ Vandergriff's ACM program of instruction also emphasizes the integration of training to reinforce the leadership and decision making education received in the classroom. According to Vandergriff, the learning was manifest in the leader's ability to effectively "assimilate the education with their training and apply both through their personal actions. Learning is the measurement of whether the adaptive leader is ready to practice in the real environment what has been preached in the classroom."²²¹

Just as the Norris Board in 1971 recommended student-centered approaches to teaching, Vandergriff recommends small group lecture and exercises, both student-centered approaches, to support adaptive leader development and ACM instruction. Vandergriff believes small group instruction and the Socratic Method are effective means of eliciting from students their decision making and problem solving rationale. The key to effective student-centered approaches, open discussion and dialogue, are effective student-teacher interactions and a supportive learning environment.

Vandergriff articulates the importance of the Army's support for a cultural shift in leader development approaches and equally emphasizes the importance of quality teachers of adaptability. According to Vandergriff, the Army must select good teachers to shoulder the burden of developing adaptive leaders. Vandergriff argues that teachers of adaptability must be tactically competent and possess the leadership, imagination, and patience needed to "teach,

²¹⁹ Vandergriff, *Raising the Bar*, 97-98.

²²⁰ Ibid., 87-88, 100.

²²¹ Ibid., 86.

facilitate, mentor and evaluate [emphasis is original] adaptability” in others.²²² Vandergriff also states that while the ACM approach to leader development presents theory following a practical classroom experience, teachers must resist the desire to provide students with answers or focus too much on task proficiency.²²³ Through scenario delivery tools such as case study examination, tactical decision games, free play force-on-force, and simulations instructors support the junior leader’s ability to build a repertoire of decision making and leadership experiences. These experiences establish a solid educational foundation that ensures junior leaders are capable of making decisions under stressful, time-constrained conditions and increasingly aware of personal thinking processes as well.²²⁴

The final aspect of Vandergriff’s ACM requires evaluation of junior leader decision making. The leadership evaluation system (LES) uses two criteria to judge the success of student leader decision making. First, the timeliness of decisions and second, the leader’s justification for decisions made. The LES also provides mechanisms, such as essay-based performance evaluations, for constructive feedback and guidance following each performance and periodically during formal counseling. Beyond mere evaluation of cadet performance, the LES provides a mechanism for exercising then evaluating a cadet’s communication skills, understanding of domain specific knowledge, judgment, and decision making.²²⁵ According to Vandergriff, each aspect of the ACM reinforces the cadet’s willingness to make decisions and gain understanding and awareness of personal cognitive and meta-cognitive processes, each contributing to the development of adaptive leadership.

²²² Vandergriff, *Raising the Bar*, 90.

²²³ Ibid., 85, 92, 90.

²²⁴ Ibid., 95-96.

²²⁵ Ibid., 108-110.

To develop adaptive junior officers the Army's leader development strategy and leader development imperatives must apply during every leader's pre-commissioning experience.²²⁶ This requires leader development at the pre-commissioning level achieve balance between all three pillars of leader development, prepare leaders for hybrid threats using outcomes-based training and education and relevant operational scenarios, and incorporate complexity within the classroom.²²⁷ The Adaptive Course Model and use of small group instruction in ROTC classrooms provides one avenue for achieving the Army's leader development imperatives at the junior officer level. Other changes can also be made to support the Army's ability to fulfill its leader development imperatives.

Achieving balance between the three pillars of leader development requires that Army leaders maintain a holistic view of the relationship between training, education, and experience. To do this requires Army doctrine better articulate the interactive and interconnected nature of the Army's pillars of leader development. Army doctrine must also reflect the imperatives established in the Army's most recent leader development strategy. This would help to fulfill *FM No. 7-0*'s own articulation of the likely need to adjust education and training to meet today's operational requirements.²²⁸ One possible means to capture an integrated view of training, education, and experience in doctrine is to change the title of *FM No. 7-0: Training Full Spectrum Operations* to read "*Developing a Full Spectrum Capable Force*." Another option is to require doctrine to move away from singularly focused doctrinal descriptions of training and education. The Army's dichotomous view of the relationship between education and training only perpetuates the view that training is a lower form of learning, best suited for junior leaders, while education is a higher form of learning reserved for mid- to senior-grade leaders. Rather than

²²⁶ Department of the Army, *A Leader Development Strategy for a 21st Century Army*, 10.

²²⁷ Ibid., 10-11.

²²⁸ Ibid., 10; Department of the Army, *FM No. 7-0*, 3-2.

identify training primarily with motor skills development and education primarily with cognitive skills development, the important integration of each to developing cognitive and motor skills must be emphasized.²²⁹ Education provides the foundation of understanding and comprehension that supports the application of learned material and skills in either academic or operationally practical settings. Training, essentially hands-on education provides students with the opportunity to practice skills learned in the classroom or through the observation of others. Training and education are viable and necessary forms of instruction at all levels within the Army's leader development system.

Adopting a balanced approach to leader development with the appropriate application of education, training, and experience must occur during pre-commissioning as well as in the operational force. The Army's current emphasis on task proficiency during cadet leader development, coupled with the view that education is reserved for more senior level officers, undermines the Army's ability to produce the adaptive junior officers it needs. This not only reinforces academia's poor assessment of ROTC military instruction, it also risks producing a perception early in an officer's career that higher education and meaningful learning is the purview of civilian academic institutions. The Army's institutional leader development programs must ensure that meaningful learning, provided by competent and adaptive-minded officers, occurs in the ROTC classroom. A greater emphasis on meaningful over rote learning and memorization of tactical and technical military skills requires cadet leader development strategies to adopt new, adaptive learning paradigms. Adaptive leader development paradigms must emphasize experienced-based approaches to cadet development, emphasize the development of leader decision making and cognitive abilities, build character, and develop within cadets a life-long desire to learn. Several means to support change in the cadet leader development paradigm are to alter the cadet evaluation process, reduce emphasis on the ROTC summer training and

²²⁹ Department of the Army, *FM No. 7-0*, 3-2.

evaluation period, and adopt Vandergriff's Adaptive Course Model and program of instruction for classroom instruction on campuses.

Cadet leaders and cadre use Cadet Assessment Reports to evaluate the performance of cadets in various leadership roles. The ROTC uses two assessment reports to assess leader development, the 'Blue Card' and the 'Yellow Card.' Both of these cards are good tools for leaders to assess peers and oneself, however, both Cadet Assessment Reports are, like the ROTC curricula, task and performance oriented. Used by cadre and cadet evaluators, the 'Blue Card,' *Cadet Command Form 156-4A-R: Leadership Assessment Report*, is well developed and well suited to evaluate cadet leader attributes and competencies as outlined in Army leadership doctrine.²³⁰ Despite this reflection of leadership doctrine, the 'Blue Card' does not capture adaptability's analytical or metacognitive qualities well. Within part I, item number 3 of the report form, the area titled "Intellectual Capacity," critical and creative thinking and cadet self-awareness are not addressed. The 'Blue Card' should highlight these two areas, both key elements of adaptability, for assessment and evaluation. The Cadet Assessment Report for self evaluation must also be updated to assess adaptability.

The 'Yellow Card,' *Cadet Command Form No. 156-2-R: Cadet Self Assessment Report* is necessarily sparse in directions to allow cadets ample room to annotate personal observations and personal assessments of performance. The 'Yellow Card' does not however require cadets to evaluate personal decision making or cognitive processes associated with their performances. In addition to requiring cadets to "Describe the Situation, assigned Task, the Action taken, and the Results," the 'Yellow Card' should require cadets to reflect upon and articulate decision making

²³⁰ U.S. Army Cadet Command, *CDT CMD Form No. 156-4A-R: Leadership Assessment Report*, (July 2009), 1. <http://www.usm.edu/armyrotc/LDP.htm> (accessed April 21, 2010). The attributes identified as subordinate to intellectual capacity are mental agility, sound judgment, innovativeness, interpersonal tact, and domain knowledge.

and cognitive processes associated with their actions in writing.²³¹ Changes that reinforce the importance of a cadet leader's cognitive ability and decision making skills are likely the easiest of changes needed to shift the ROTC learning program to a more adaptive learning paradigm.

The Leader Development and Assessment Course (LDAC), a five-week long leader development exercise that takes place between a cadet's junior and senior year of undergraduate schooling, places significant emphasis on a cadet's performance of tasks and drills.²³² The emphasis on cadet task performance and proficiency during LDAC contributes significantly to a cadet's branch assignment and promotes development approaches focused the memorization of technical military information.²³³ Reducing the weight of cadet performance during LDAC, relative to on-campus evaluation, and reducing emphasis on task proficiency would facilitate a shift in the ROTC leader development paradigm. Instead of centering cadet evaluations on task-profilency, cadet evaluations during LDAC should focus on the cadet's cognitive and decision making abilities. LDAC would then serve as a capstone developmental experience, building upon the work completed at universities and colleges. Cadet Command's elimination of platoon-level operations, decreasing squad level operations, and focusing on squad and team-level decision making and problem solving exercises during LDAC is one possible method for reducing emphasis on merely memorizing tasks. Given the necessity for a common point of evaluation supportive of cadet accession and branch assignments, LDAC would continue to provide a venue for cadet leader evaluations, however the focus of evaluations would shift to adaptive behaviors such as decision making abilities, critical and creative thinking, and meta-cognitive processes.

²³¹ U.S. Army Cadet Command, *CDT CMD Form 156-2-R: Cadet Self-Assessment Report* (July 2009), 1. <http://www.usm.edu/armyrotc/LDP.htm> (accessed April 21, 2010).

²³² Department of the Army, *Leader Development and Assessment Course*, under "Army ROTC." http://www.goarmy.com/rotc/leader_development.jsp (accessed April 21, 2010).

²³³ Department of the Army, *Leader Development Program (LDP) Handbook* (2009), 3-4. <http://www.usm.edu/armyrotc/LDP.htm> (accessed April 21, 2010). The Leader Development and Assessment Course Tactical Standing Operating Procedure (TACSOP) Manual is posted at the following website: <http://www.rotc.usaac.army.mil/8Bde/Cadet.html> (accessed April 21, 2010).

The final means to shift ROTC's leader development paradigm is to adopt an Adaptive Course Model (ACM)-like approach to classroom instruction. Implementation of the ACM would prove the most difficult of the three recommendations provided thus far to shift the ROTC leader development paradigm. While the cost of adopting ACM may be minimal, save the time needed to adjust the ROTC curriculum and develop scenarios for classroom use, the most difficult aspect of adopting the ACM is shifting the Army's cultural preference for more training at the pre-commissioning level. Adopting ACM requires the Army to integrate small group instruction techniques into ROTC teaching methodologies, shift the preferred means of in-class instruction from lecture and rote memorization to experience-based learning, and requires better development and preparation of adaptive leader cadre for the ROTC program.

Reducing the use of lecture during in class ROTC instruction is essential to maximizing the effective use of time available to develop adaptability in cadets. In order to gain the most from time available with students, classroom learning must focus on key concepts and theory relevant to decision making and opportunities for higher levels of thought. Small group instruction, which encourages active participatory learning, provides the most effective use of limited face-to-face time between cadets and ROTC instructors. Stephen D. Brookfield, a professor at the University of St. Thomas, provides the following purpose for discussion-based teaching methods, like small group instruction,

The overarching purpose of discussion is to help learners to explore their experiences so that they become more critical thinkers...; that is, to help them to become contextually aware, to develop reflective skepticism, to be able to unearth and analyze the assumptions informing their values, beliefs, and actions, and to explore alternative ways of thinking and acting.²³⁴

The use of small group instruction during the ACM helps to achieve the purposes outlined by Brookfield. The professor also points out that discussion exposes students to a diversity of

²³⁴ Stephen D. Brookfield, "Discussion," in *Adult Learning Methods: A Guide for Effective Instruction*, 2nd Edition, edited by Michael W. Galbraith (Malabar, FL: Krieger Publishing Company, 1998), 174.

perspectives, requires recognition of others perspectives and externalization of personal assumptions and beliefs that shape decisions and thinking, and introduces students to “elements of complexity and ambiguity.”²³⁵ As previously noted, small group instruction is a student-centered approach and therefore places the burden of learning on the student. To support the ROTC program’s shift to small group instruction and its use of discussion over lecture, the Army must amend its leader development regulation, *AR No. 350-1*, to reflect small group instruction as the preferred method of instruction at the pre-commissioning level.²³⁶ Further, Cadet Command must adjust the format and content of its ROTC program of instruction for each year of a cadet’s enrollment to reflect a preference for small group instruction whenever possible. Adopting a student-centered, small group instruction format of instruction will also assist the Army in achieving its first and sixth leader development imperatives.²³⁷

To develop the requisite experience in cadets to support adaptive leadership, the ROTC must adopt an experience-based or outcomes-based training and education (OBT&E) program. Adopting a leader development program that builds experience concurrent with tactical and technical knowledge and comprehension will complete the mechanical transition of institutional level learning at the pre-commissioning level. At the heart of an effective approach to adaptive leader development is the successful interaction of education, training, and experience.

²³⁵ Brookfield, “Discussion,” 173-174.

²³⁶ Department of the Army, *Regulation 350-1: Army Training and Leader Development* (Washington, DC: Headquarters, Department of the Army, 2007), 39. Paragraph 3-5.b. states that small group instruction “is the preferred method of conducting resident training in all leader development courses except BOLC [Basic Officer Leadership Course].” The regulation then outlines the benefits of small group instruction, which includes teaching leaders ‘how to think’ versus ‘what to think,’ improving the learning environment by encouraging student participation and self-learning, facilitates coaching and team building, enables the sharing of experiences and building of relationships, improves communication and improves instructor tactical and technical competence. Each of these seems to be beneficial side effects even at the cadet level of leader development.

²³⁷ Department of the Army, *A Leader Development Strategy for a 21st Century Army*, 10-11. This document outlines eight leader development imperatives to guide leader development policy and actions to develop the leaders and leader development infrastructure the Army needs. The leader development imperatives are listed in an earlier footnote, number 11.

Experienced-based training or OBT&E provides the opportunity for all three pillars of leader development to be integrated in an effective holistic learning program. The ROTC must adopt such a program of instruction, one that is based on the use of case studies and tactical decision making scenarios, use of effective discussion and feedback, and use of well trained teachers-coaches.

The use of case studies and tactical decision making scenarios requires cadets to apply learned cognitive, motor, and interpersonal skills to solve problems. Moreover, the use of practical exercises requires cadets to think, develop solutions or courses of action, make decisions and communicate decisions and thinking to peers. The use of experienced-based learning under the constraints of time also allows for iterative decision making opportunities and develops a cadet's ability to think and make decisions under pressure. To effectively develop adaptive leaders comfortable with decision making in complex, uncertain, and time constrained environments, the ROTC must adopt learning approaches that require cadets to develop these skills from the earliest opportunity. Immediately after scenarios, cadets participate in discussion to assess their actions, decisions, and thought processes. This allows the cadets to develop meta-cognitive abilities by thinking about personal critical, creative, and intuitive thinking processes. It also allows the cadet to assimilate the experiences, thinking, and solutions provided by peers and exposes personal cognitive and decision making strengths, weaknesses, and biases. Through teacher facilitated discussion, cadets develop an understanding of doctrine and the tactical and technical military concepts relevant to the scenario and the lesson plan. Further, it is only after the completion of scenarios, discussion, and feedback that instructors provide cadets with supporting doctrine, concepts, and theory, in other words, the 'right answer.' Moreover, the use of training is not seen as a means for instruction, it is an opportunity for hands-on practice and demonstration of the cadet's ability to incorporate education and practically apply knowledge in a meaningful

and adaptive manner.²³⁸ While this learning process seems backwards, use of the ACM learning process requires cadets to operate in complex, uncertain, ambiguous situations. This not only fulfills the Army's third and sixth leader development imperatives, it allows cadets to build a repertoire of decision making and thinking experiences that encourage and facilitate future decision making, the development of judgment and intuition, and builds confidence.²³⁹ To facilitate the shift, the Army must require Cadet Command to adopt the Adaptive Course Model, or similar methodologies, and adjust the ROTC curriculum to support adaptive learning approaches. Course content must remain relevant to the Army's operational requirements and should include military science, history, leadership, ethics/values, and other military-related topics. Emphasis however must shift to the use of scenarios and decision making exercises in the ROTC classroom to ground material in concrete experiences. This requires Cadet Command to develop decision making exercises and student-teacher learning packets that support in-class conduct of exercises. Cadet Command would also need to support ROTC unit expenditures to acquire or develop materials that support the conduct of scenarios and the execution of experienced-based learning.

Well trained teachers are the final aspect of an effective adaptive leader development program in the ROTC classroom. The teacher of adaptability must be competent, innovative, and patient to develop adaptability in cadets. Only through effective teachers will an adaptive learning program succeed.²⁴⁰ Only those teachers who are able and willing to effectively employ small group instruction and create learning environments that nurture experimentation, adaptive and innovative decision making, and provide relevant and meaningful feedback should be employed. To develop and attract these leaders, the Army must reward officers who seek or are given

²³⁸ Vandergriff, *Raising the Bar*, 85-86.

²³⁹ Foster, "No 'Approved Solutions' in Asymmetric Warfare," 28.

²⁴⁰ Vandergriff, *Raising the Bar*, 90.

appointments as ROTC instructors. Just as West Point requires its instructors to possess an advanced degree before teaching at the academy, the Army should allot the time and resources needed to enable ROTC instructors to complete, or make significant progress toward completion of advanced degrees. For example, officers assigned to teach at a ROTC unit should receive at least six-months to preposition at an assigned ROTC unit to work toward the completion of an advanced degree. Additionally, Cadet Command must ensure that instructor training provided to ROTC instructors outlines and demonstrates experienced-based learning models to ensure that adaptive leader development approaches are understood and adapted to fit the leadership style of the instructor. Lastly, the Army should allow officers in all grades to serve as instructors in the ROTC classroom. This allows officers with valuable combat experience or educational credentials to support the development of future generations of adaptive leaders while considering separation or pending future operational assignments. Utilizing this approach not only benefits cadets, it benefits officer instructors, and the Army as well.

The development of adaptive leaders requires the Army to adapt its current institutions and learning paradigms to meet future challenges. The Army's current leader development strategy reflects the Army's understanding and willingness to change. The Army must therefore ensure that change occurs at the pre-commissioning level as well as the operational Army. If the Army desires adaptive leader skills and qualities in its young officers, than those skills and qualities that have been identified as difficult to learn must be presented to and instilled in young leaders from the time of initial affiliation with Army service. The development of adaptability and tactically proficient junior officers are not mutually exclusive goals and the use of experienced-based training such as the Adaptive Course Model during ROTC prepares newly commissioned officers to adapt in today's complex operational environment.

Conclusion

Adaptability, like leadership, is a complex human behavior and difficult to define and understand, let alone replicate. The Army's difficulty in developing adaptive leaders is therefore not an unexpected challenge. In fact, the discussion concerning the development of the ideal Army leader best suited for the rigors of combat is age old. The Army has long recognized the importance of officer education, realistic training, and lifelong experience in the development of effective leaders. Traditionally the discussion concerning officer leader development has centered on the appropriate mix of education and training. This discussion, and the manner in which education and training are understood, leads naturally to a zero sum gain argument. The competitive view of the relationship between education and training, however, is counterproductive to the Army's aim to develop adaptive leaders. Rather than debate whether more training should come at the expense of education, or vice versa, the focus of debate should be the degree of interaction between each of the three pillars of leader development.

The relationship between education and training is better viewed as an interactive yin and yang, a balance between two essential elements in the development of adaptive Army leaders. This is especially true for its junior leaders with little time available to prepare them for combat. Leadership and training doctrine articulate the importance of education and training and the role that each plays in the development of adaptive leaders. The Army's most recent leader development strategy recognizes the importance of achieving an effective balance between education, training, and experience to effectively develop adaptive leaders. However, the Army's tendency to view learning at the lowest levels, such as pre-commissioning, in a step-by-step fashion leads ROTC instruction to focus largely on rote learning and memorization of checklist driven tasks, procedures, and skills. For example, the Army's recent leader development strategy declares the importance of developing cadet proficiency in weapons and equipment used during a

leader's first unit of assignment.²⁴¹ Interestingly, however, the leader development strategy's model of attributes and skills accrued over time does not include the development of cognitive skills during pre-commissioning.²⁴² The institutional Army's inherent tendency to focus on rote learning methods, at the expense of meaningful learning must be overcome.

While recognizing that skills training and indoctrination through rote learning are both important to junior leader development, these forms of learning cannot come at the expense of education and meaningful learning. Lecture and podium delivered lessons can no longer be the mainstay of instruction in the ROTC classroom. For meaningful learning to take place a better balance between education, training, and experience must be achieved. Developing technically and tactically competent junior officers and developing adaptive, self-aware, and intellectually proficient decision makers are not mutually exclusive learning objectives. Thinking, specifically higher cognitive functions, is a foundational leader requirement. To effectively develop higher cognitive functions, the methods of instruction used during ROTC programs must focus on developing adaptability. While leaders are young and officers' minds are receptive to change and new ideas, adaptability focused learning methods will develop within officers self-awareness and an ability to think, improve decision making and communication skills, foster better interaction between young officers and leaders, and instill in cadets a desire for lifelong learning. Implementing more meaningful learning methods at the earliest point in an Army officer's career will impress upon young leaders the importance of their contribution to the team and support the development of the adaptive leaders the Army needs.

Maj. Gen. (retired) Scales called for the Army to undergo a 'second learning revolution' to better prepare the Army's young leaders to combat adaptive threats in today's complex operational environment. If the Army is going to be successful in developing the adaptive leaders

²⁴¹ Department of the Army, *A Leader Development Strategy for a 21st Century Army*, 12.

²⁴² Ibid.

it needs to fight and win against future threats in uncertain, ambiguous, and changing operational environments, it must ensure that the second learning revolution is adaptability focused. This is especially true during the ROTC pre-commissioning process, the Army's largest potential provider of young adaptive junior officers.

Appendix 1 – Hogarth’s Model of Intuition

In his 2001 study of intuition, Dr. Robin Hogarth developed a model that describes the interaction of the mind’s tacit and deliberate cognitive systems. Figure A-1 below illustrates Hogarth’s framework.

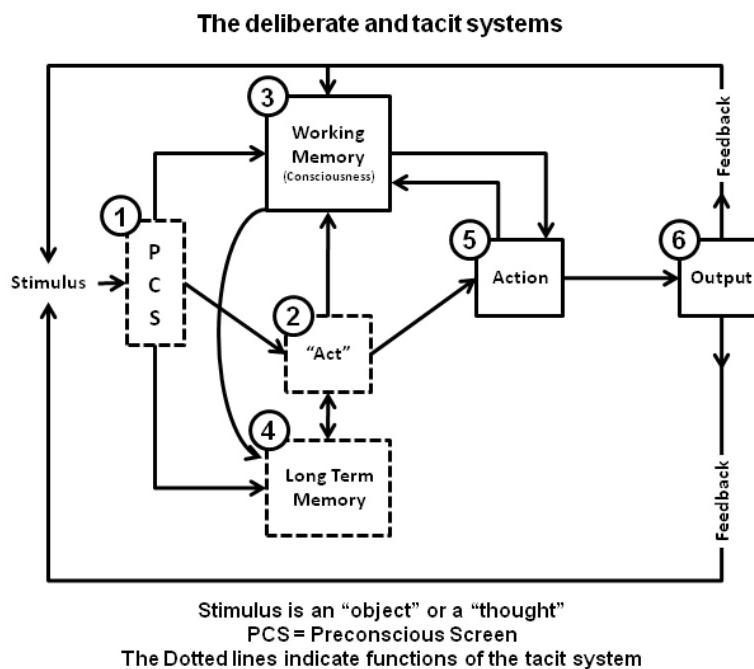


Figure A-1. The Deliberate and Tacit Systems (adapted from Hogarth, 2001)²⁴³

Dr. Hogarth provides three scenarios to demonstrate the process inherent in the intuitive response framework: recording without conscious thought, taking action automatically, and taking action deliberately. In the first scenario, the mind processes external stimulus (something seen, heard, or smelled) or internal stimulus (thinking) through the preconscious screen (PCS) (box 1), determines that no action or attention is required (box 2), and stores the stimulus in long

²⁴³ Hogarth, *Educating Intuition*, 196.

term memory (box 4) for later use.²⁴⁴ This sequence of events demonstrates the development of tacit knowledge or the recording memories for later use. In the second scenario, “taking action immediately,” the mind determines, through the PCS, that received stimulus requires some immediate action. Immediate actions encompass one’s responses to fear, survival instincts, or learned automatic responses that no longer require active, conscious thought, like catching a ball or performing immediate action on a jammed weapon. Hogarth considers these actions intuitive. Intuitive thought bypasses conscious thought and results in action, and reflection only occurs after completed actions (boxes 1, 2, 5, and 6).²⁴⁵ In the final scenario, “taking action deliberately,” the mind determines, through the PCS, that received stimulus requires conscious decision or is too ambiguous or complex for the tacit system to handle. In this case the deliberate system, which Hogarth states “rarely shuts down completely and often performs a monitoring function,” overrides the tacit system.²⁴⁶ During this sequence, analytical cognitive processes such as critical thinking or problem solving take place before decisions are made and actions taken (boxes 1, 2, 3, 5, 6). Hogarth also describes a feedback mechanism that allows leaders to learn from decisions and actions taken. Hogarth’s model provides a good example of the interaction between both the intuitive and the analytical cognitive processes and provides a good tool for gaining an appreciation for adaptive leadership.

²⁴⁴ Hogarth, *Educating Intuition*, 197.

²⁴⁵ Ibid., 197-199.

²⁴⁶ Ibid., 199-200.

Appendix 2 – Klein’s Recognition-Primed Decision Model

In his 1997 study of Naturalistic Decision Making, Dr. Gary Klein developed a model that describes the mind’s intuitive decision making process. Klein developed his model from observations of experienced leaders’ decision making. Like Hogarth’s framework, Klein’s model also depicts the interaction of the automatic or intuitive cognitive processes with the mind’s deliberate thinking processes.²⁴⁷ Figure A-2 below illustrates a hybrid of Klein’s Recognition-Primed Decision (RPD) Model.

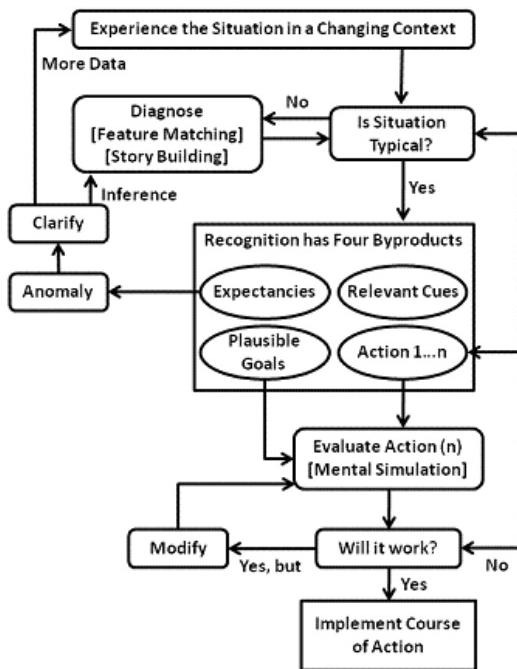


Figure A-2. Integrated Version of Recognition-Primed Decision Model
(Adapted from McCaffrey, Gut Feeling: Developing Intuition in Army Junior Officers, 2007)²⁴⁸

Like the Hogarth model, the Klein model provided three possible scenarios for a leader’s response to the environment. In the simplest scenario, the leader gained an appreciation for a

²⁴⁷ Klein, *Making Decisions in Natural Environments*, 9, 17.

²⁴⁸ McCaffrey, “Gut Feel,” 7; Klein, *Making Decisions in Natural Environments*, 6.

given situation, formed expectancies about possible outcomes, identified relevant cues to shape possible actions, determined plausible goals, selected an appropriate, typical action based upon the circumstances and then executed the task.²⁴⁹ In a scenario requiring a difficult decision, owing to uncertainty or an anomaly, a scenario requiring the leader to conduct analytical thought, the leader constructed alternative stories to explain the situation and then analyzed the consistency and plausibility of the stories prior to taking action.²⁵⁰ McCaffrey described story-building as “weaving elements from [a] number [of] discrete experiential patterns into a new integrated pattern that accounts for the variety and complexity of the features present in the seemingly novel decision situation.”²⁵¹ The last scenario Klein described took place after the leader selected a course of action. Here the leader developed a series of mental simulations, or wargames, to evaluate weaknesses, identify opportunities, and improve the chosen course of action.²⁵² The process of mental simulations, or “progressive deepening,” would take place as necessary “until the decision maker arrives at... a satisfactory response... the first feasible, although probably not optimal, solution to a problem.”²⁵³ The identification and development of one satisfactory course of action, versus a selection process, was a feature common to both Klein’s RPD Model and Hogarth’s intuitive response framework. Like Hogarth’s model, Klein’s RPD Model provides a good example of the interaction between the intuitive and analytical cognitive processes, provides insight to the value of experience in forming mental cues, and provides a good tool for gaining an appreciation for adaptive leadership.

²⁴⁹ Klein, *Making Decisions in Natural Environments*, 5.

²⁵⁰ Ibid.

²⁵¹ McCaffrey, “Gut Feel,” 8.

²⁵² Klein, *Making Decisions in Natural Environments*, 5.

²⁵³ McCaffrey, “Gut Feel,” 8; Athens, “Unraveling the Mystery of Battlefield Coup d’oeil,” 20. The process of “progressive deepening” was cited in Maj. Athens’ monograph.

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